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CLINICAL STUDIES IN SCHIZOPHRENIA. <i>C. Macfie Campbell</i>	475
THIRTY CONDEMNED MEN. <i>Aaron J. Rosanoff</i>	484
METHODS FOR ESTIMATING CAPACITY FOR RECOVERY IN PATIENTS WITH MANIC-DEPRESSIVE AND SCHIZOPHRENIC PSYCHOSES. <i>Edwin F. Gildea and Evelyn B. Man</i>	496
CLINICAL AND BIOLOGICAL INTERRELATIONS BETWEEN SCHIZOPHRENIA AND EPILEPSY. <i>Paul H. Hoch</i>	507
FOLLOW-UP STUDY OF A SERIES OF PATIENTS TREATED BY ELECTRICALLY INDUCED CONVULSIONS AND BY METRAZOL CONVULSIONS. <i>B. L. Pacella and S. E. Barreys</i>	513
COMPARATIVE ELECTROENCEPHALOGRAPHIC OBSERVATIONS FOLLOWING ELECTROSHOCK THERAPY USING RAW 60 CYCLE ALTERNATING AND UNIDIRECTIONAL FLUCTUATING CURRENT. <i>L. D. Proctor and J. E. Goodwin</i>	525
CONVULSIVE SHOCK THERAPY IN ELDERLY PATIENTS—RISKS AND RESULTS. <i>Vernon L. Evans</i>	531
A STUDY OF MALNUTRITION IN CHRONIC SCHIZOPHRENIA. <i>Crawford N. Bagans and James M. Norris</i>	534
STUDIES ON THE PROGNOSIS IN SCHIZOPHRENIC-LIKE PSYCHOSES IN CHILDREN. <i>R. S. Lourie, B. L. Pacella and Z. A. Piotrowski</i>	542
PSYCHOPATHOLOGY OF AGING. <i>O. Diethelm and F. V. Rockwell</i>	553
THE TREATMENT OF INVOLUTIONAL PSYCHOSES WITH DIETHYL STILBESTROL. <i>Eugene Davidoff, E. C. Reifstein and Gerald L. Goodstone</i>	557
AN ALCOHOL DETOXICATION MECHANISM IN THE CENTRAL NERVOUS SYSTEM. <i>John G. Dawson</i>	565
DISAPPOINTING RESULTS WITH BILATERAL PREFRONTAL LOBOTOMY IN CHRONIC SCHIZOPHRENIA. <i>Gert Heilbrunn and Paul Hlethko</i>	569
PSYCHOTIC VISITORS TO GOVERNMENT OFFICES IN THE NATIONAL CAPITAL. <i>Jay L. Hoffman</i>	571
THE PSYCHOSOMATIC INTERRELATIONSHIP OF UTERINE RETRODISPLACEMENT AND PROLAPSE TO NORMAL AND PSYCHOTIC WOMEN. <i>Harry C. Leavitt</i>	576
MOONLIGHT AND NERVOUS DISORDERS. <i>John F. Oliven</i>	579
PSYCHIATRY AS A SOCIAL SCIENCE. <i>Gregory Zilboorg</i>	585
REVIEW OF PSYCHIATRIC PROGRESS 1942.....	589
A MESSAGE FROM THE PRESIDENT. <i>Arthur H. Ruggles</i>	615
COMMENT: Dr. Rosanoff. Administration Problems.....	616
NEWS AND NOTES: The American Ethnological Society. Scientific Exhibits at the Detroit Meeting. Transportation Reservations for the Detroit Meeting. Medical Books for Russian War Relief. Notice of Proposed Change in Constitution. American Board of Psychiatry and Neurology, Inc., Regional Examination. American Red Cross Offers Medical Social Service Scholarships. Brigadier General Reinartz, Commandant Aviation School of Medicine, Honored for 25 Years of Service. Medical Correctional Association. The Kenny Treatment of Pollomyelitis. Report of Nominating Committee. Dr. Kelleher Appointed Superintendent of Rome State School. Dr. Sidney W. Bisgrove Superintendent of Syracuse State School. Journal of Neuropathology and Experimental Neurology. Dr. Gildea Goes to Washington University. Dr. Bernard Sachs Honored. Correction. Award for Research in Alcoholism. National Committee for Mental Hygiene, Annual Meeting. Annual Meeting: Notice to Members. Offices of The American Psychiatric Association. Central Neuropsychiatric Association Cancels Meetings.....	619
BOOK REVIEWS: The Role of Conjuring in Seizure Society. <i>A. Irving Hallowell</i>	625
Psychiatry in Medical Education. <i>Franklin G. Ebaugh and Charles L. Rymer</i>	625
Sex Guidance in Family Life Education. <i>Frances Bruce Strain</i>	627
Foundation for a Science of Personality. <i>Andras Angyal</i>	627
Goals and Desires of Man. <i>Paul Schilder</i>	627
Color Class and Personality. <i>Robert L. Sutherland</i>	628
Psikhiatriya. <i>V. A. Gilyarovskij</i>	629
Criminology. <i>Donald R. Taft</i>	630
In Commemoration of William James—Symposium.....	631
IN MEMORIAM: Herman Irving Wortis. <i>K. M. B.</i>	632

CLINICAL STUDIES IN SCHIZOPHRENIA

A FOLLOW-UP STUDY OF A SMALL GROUP OF CASES OF DETERIORATION WITH FEW SPECIAL TRENDS (SCHIZOPHRENIC "SURRENDER")¹

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For many years at the Boston Psychopathic Hospital the study of schizophrenic conditions has been in the centre of the program of investigation. Interest was not limited to the basic underlying physiological processes but paid tribute to individual traits of personality, instinctive and emotional idiosyncrasies, internal conflicts and their outcome, early conditioning factors and later environmental stresses.

This attitude represented a common-sense effort to see how far the life history of the individual patient and the evolution of the schizophrenic disorder might be intelligible in the light of the familiar principles which explain human adaptation in general.

The cases studied fall naturally into a few groups, but the technical terms usually given to these groups have become so shop-worn and contaminated that one hesitates to circulate further this degraded currency. In reviewing these groups it seems better to formulate them in familiar and colloquial terms.

In one group the disorder seems to a certain extent to represent a groping of the individual to attain some sort of tolerable equilibrium or adaptation, an attempt however at an inferior or immature level which fails to do justice to the demands of social life. Thus the attempt at adaptation may be made by recourse to the ideational process (delusional conditions) or, on the other hand, the patient may resort to immature regres-

sive patterns of behavior. In other schizophrenic patients the adaptive quality is less prominent. This is the case in schizophrenic "turmoil" with disorganization of thought and behavior, and in the type of schizophrenic "surrender" which is the subject of the present communication.

In this small group of patients showing a schizophrenic "surrender" the clinical picture is dominated by loss or defect, by deterioration of function with only trifling or episodic manifestations of the adaptive anomalies of behavior and thought which are characteristic of the other groups. A brief report of 6 of these 9 patients with some discussion of their problems has been presented in an earlier communication.²

It has now been possible to follow up these patients for the decade since their admission to hospital between 1929 and 1931, as well as to review and to supplement the previously available data. The present paper presents the results of this review. Whoever resolves the general problem of the hypothetical disease *schizophrenia* into the problems of individual schizophrenics must be prepared to deal with a disconcerting multitude of particulars. I should therefore, even at the risk of wearying the reader, have presented actual case histories in considerable detail, but editorial indulgence has its limits. I therefore present the history of the first patient in some detail to illustrate the clinical material, but summarize very briefly the case histories of the other 8 patients.

The paper has not been complicated by a discussion of the psychiatric literature dealing with this group of patients with their pronounced deterioration of obscure origin. One may, however, refer to George H. Kirby's "Dementia Præcox Deteriorations

¹ A summary of this paper was presented at the ninety-seventh annual meeting of The American Psychiatric Association, Richmond, Virginia, May 5-9, 1941.

I take this opportunity of thanking the Scottish Rite Masons, 33°, Northern Jurisdiction for grants which made possible this study.

I am much indebted to Dr. Irma Bache and to Mrs. Rena F. Dewey, psychiatric social worker, for their valuable assistance in obtaining the data used in this study and in checking and organizing the material collected.

² Vid. *Destiny and Disease in Mental Disorders*. 1935, W. W. Norton & Co., Inc., N. Y. C., pp. 95-107.

Without Trends"³ and to Bowman and Kasanin's "Constitutional Schizophrenia."⁴ The latter paper, to a large extent, is based upon the same cases which form the basis of this communication.

CASE HISTORIES

Case 1.—Simple deterioration in a young man of poor constitutional endowment (inferior intelligence, poor muscular coordination, facile vomiting); in the middle twenties lessened efficiency, recognition of impending insanity, rejection of mother, semi-stuporous episodes; progressive reduction of level during ensuing eleven years with complete loss of interest in the environment, empty giggling, tic-like movements, occasional shouting. No indication of any special preoccupations.

Norman S.—Age 27 (born Aug. 23, 1903). Unskilled helper. Adm. Sept. 19, 1930.

Heredity.—Only living child; a brother died at 2½ years, before the patient was born.

Father was normal; the paternal grandfather committed suicide at 66 worrying over an alcoholic son; paternal uncle alcoholic. The mother was a stable woman but easily annoyed, over-solicitous; the maternal grandfather was an odd person, a rabid spiritualist who became very despondent and alcoholic after his wife's suicide; maternal grandmother committed suicide which was attributed to her worry over her husband's spiritualistic beliefs.

Home Influence.—Carefully safeguarded by parents; over-protected by solicitous mother who fostered his dependence on her, and even when he was 27 cut his finger nails, bathed and dressed him; the father slapped the patient like a young child when he once swore at the age of 25.

School History.—A dull boy, he disliked school; he left school at 11 after passing the sixth grade. If reprimanded at school he would complain of nausea and go home.

Sex.—The patient admitted to the physician frequent masturbation since early boyhood; the parents had no knowledge of this. The patient had little association with girls, recognized his inferiority in this respect. The father suggested there might have been some sexual incident in boyhood. Before admission the patient had for some time been preoccupied with the topic of marriage. Inadequate and contradictory data.

Personality.—From childhood docile and unduly dependent upon his mother; he had no playmates, associated only with his family; was sensitive,

easily teased, never stood up for his rights, avoided quarrels. He exploited his tendency to nausea and facile vomiting. He never smoked or drank.

Medical History.—At the age of 1 year he fell from a carriage, with a brief period of unconsciousness. From early childhood he showed a definite motor inferiority; he was clumsy and rigid in the use of his upper extremities, had great difficulty in writing, could not catch a ball normally; was left-handed.

From early childhood he was very fussy about his food and was easily nauseated and thus exploited his mother to get his own way.

Occupational History.—Showed no spontaneous interest in getting a job; at 21 was used by his father for unskilled work in a shipping department under the latter's supervision.

Evolution of the Mental Disorder.—At the age of 25 on account of "languor" the patient was taken by his mother to a general hospital (Jan. 1929); he was diagnosed as "an infantile personality"; weakness of facial muscles and general muscular weakness were noted; he was referred to the Boston Psychopathic Hospital but the mother did not take this advice. Some months later the parents noticed that the patient had a "starey" expression, and seemed suspicious. Early in 1930 on account of vague physical complaints and irregularity at work he was taken off the pay-roll. During the following months in written notes he referred to the belief that he was still sane but that he would soon be insane and in an institution. He once said to his mother that a boy who greeted him did so because he knew that the patient was crazy.

In July, 1930, on two occasions he took to bed for about a week, and on the first occasion showed puzzling behavior, making funny noises with his mouth and pointing to the air. He seemed quite clear during a visit to relatives after the second episode.

During the week before admission to the hospital he showed variable behavior. He seemed to be very much irritated by the attentions of his mother, he doubted whether his mother was actually his real mother. For three days he lay in a somewhat stuporous condition, from which it was difficult to rouse him.

On admission the patient claimed that he was perfectly happy. He seemed to be preoccupied and made no spontaneous remarks. He claimed that his mother was Marie Ware (no person of this name is known to any of the family). He expressed no other unusual ideas, gave no evidence of hallucinations. He was clear as to the date and the place and gave a fair outline of his life. He was a well developed and well nourished young man, with marked tremor of the hands, tongue and circum-oral muscles.

After six days, during which the patient was inactive and uncommunicative, he was transferred to a state hospital. He remained there during the following eleven years, with increasing lack of spontaneity and interest, increasing prominence of silly smiling and giggling and of unexplained epi-

³ State Hospital Bulletin, Vol. V, No. 3, Nov. 1912.

⁴ American Journal of Psychiatry, Vol. XIII, No. 3, Nov. 1933.

sodes of irritability. At first he denied that he heard voices, and expressed no morbid ideas. He realized that he was not as other people are and *blamed his condition on masturbation.* He was correctly oriented. He answered questions as a rule only in monosyllables. Inappropriate smiling was observed from the very beginning of this period and was thought to be possibly in response to hallucinations. He was occasionally taken home on visit but was frequently difficult to manage at home. In the hospital he was docile, showed no spontaneity, occasionally did some ward work on request and would answer questions very briefly. Even when he received a rather extensive burn he made no complaint to the personnel.

In 1934 (æ. 30) he was noted as making a few very simple remarks, e.g., "I want to go because of William, that's you, I knew you and I knew Mike." The hospital notes referred to *mannerisms*; he would occasionally pluck hair from his head. *He denied hallucinations.* By the end of 1934 he seemed to have *no interest at all in the environment.* During 1935 he lost ground; the silly grin and smile were still very prominent; he had set mannerisms and would answer "yes" automatically to any question. Hitherto neat and tidy, he now began to be rather *dilapidated and untidy.* He would occasionally become very much annoyed and curse or *shout out* in an incoherent manner. Even in quiet periods there was a good deal of *grimacing, with nodding of the head, blinking of the eyes, odd movements of the fingers.*

These episodic reactions were also noted in 1937 during which year he said that *he heard voices.* Most of the time he would sit laughing and giggling to himself and would answer very few questions.

During the following four years there was no essential change in his condition; he was described as silly, continued to grin and giggle. He knew that he was in a hospital, claimed that he was occupied with his old task; he denied hallucinations.

Comments.—In the history of the patient the outstanding feature is the disappearance of almost all interest and spontaneity, with no evidence either of progressive physical disease, major external frustration, or persistent inner preoccupation or conflict. As interest and initiative disappear, automatic reactions seem to be released—grimacing, smiling, giggling, tic-like movements, blind rage, incoherent shouting. The sex urge disappears without trace. Hallucinations, delusions, special preoccupations play a negligible rôle in the clinical evolution.

The lad had never attained an adult level; he was of poor intelligence, inferior motor equipment, sensitive autonomic system, dependent or infantile personality.

He had, however, maintained a uniform level of adjustment for years until the age

of 25 when, with loss of interest and of initiative, there began the descent to a much lower level of parasitic existence.

We seem to be dealing with a poorly endowed organism of low vitality with early abiotrophy.

Case 2.—*Mental deterioration in a young man beginning about the age of 20; onset with marked loss of sociability, narrowing of interests and range of activity; later, discordant mood, irritability, resentment, odd nervous feelings attributed by the patient to masturbation; during the ten years after first hospital admission (age 24 to 34) increasing loss of interest and of contact with his fellows, surly, impulsively aggressive, incoherent, at times disoriented; apart from his ideas about his bodily condition, only rare indications of some delusional idea or of hallucinatory experiences; in the physical status some minor neurological defects, empyema necessitatis (age 25), evidence of pulmonary tuberculosis (age 28).*

Quentin R.—Age 24 (born Jan. 14, 1907). Shipyard clerk. Adm. June 24, 1931.

Comments.—In this case the deterioration of the patient is characterized by the complete abandonment of friendly human contacts, by the extraordinary narrowing of his interest and by the lack of response to the normal demands and opportunities of everyday life, by his limited and disjointed utterances and by his disorientation. The persistence of some interest in the attitude of his fellows is indicated by his early suspicions that people may peek into the house, that neighbors are talking about him, and by the later isolated ideas that "someone is planning something," that his condition may be due to electricity. Apart from such utterances there is little indication of any special trend save the preoccupation with peculiar bodily feelings and with possible organic damage attributed to masturbation. Hallucinations play a quite subsidiary rôle in the clinical history. In comparison with Case 1 the mood of the patient is much more disturbed and indicative of tension and of turmoil; he is discontented and discouraged, resentful and aggressive, at times blindly venting his irritation on inanimate objects. The physical

ailments of the patient seem to throw little light on the general evolution of the case.

Case 3.—Simple deterioration in a placid, unassertive young man; about the age of 23, with no evidence of physical ill-health, onset of forgetfulness, lack of interest and response, seclusiveness, occasional meaningless laughter, neglect of personal care; some realization of mental impairment; during the following seven years a parasitic or vegetative life with further reduction of mental level; little evidence of special preoccupations or hallucinations.

Robert S.—Age 26 (born Dec. 5, 1904). Market helper. Adm. March 30, 1931.

Comments.—As in Case 1 the patient presents to an extreme degree loss of spontaneous activity, of interest in and response to the environment, with only an occasional fragmentary and passing indication of any special trend or attitude or preoccupation, hallucinatory or delusional. It is a condition of simple defect in all spheres, in activity, in interest, in emotional play, in grasp of stimuli, orientation, memory; personal cleanliness descends at times to a very low level although toilet habits are not lost.

The patient had started from a higher level than in Case 1; he had passed the eighth grade in school, for years had supported himself. The home atmosphere had starved the affections of the growing child; his personal endowment and early training had not enabled him as an adult to do more than carry on for years a narrow program of drab wage-earning with no recreation or cultural alleviation. From this level of activity, with no demonstrable cause, from the age of 23 to 34 he showed a steadily progressive and profound descent to the level of parasitic existence. There is not as in Case 2 evidence of protest and resentment, of fragmentary attempts to attribute failure to bodily weakness or to external influences; the sources of intellectual activity as of productive energy and of emotion seem equally to have dried up. The patient founders without apology and without protest.

Case 4.—Simple deterioration with occasional evidence of auditory hallucinations in

a woman; onset in adolescence with striking loss of interest, dull and apathetic behavior, indifference to personal care and household routine; from 20 to 45, in hospital or at home, a parasitic life at childhood level; simple stereotyped childish occupations; from time to time evidence of pleasing auditory hallucinations, but no evidence of morbid ideas.

Margaret L.—Age 38 (born March 22, 1893). Mill-worker. Adm. April 29, 1931.

Comments.—In this patient as in the previous three cases one sees the same unaccountable descent from a fair level of social adjustment to a low level of dependence with little spontaneity and a complete indifference to the usual demands and opportunities of the environment. There is no evidence of inner conflict and tension, nor of any distorted attitude towards the outside world; at the same time pleasing "voices" of unknown content furnish a subjective contribution to her simple child-like program. The descent from the level of adolescent adjustment has not been so profound as in the previous cases, but has been arrested at a simple childish level. The external interests of the patient had been frustrated in early adolescence; eager to go on with her education and to cultivate her musical interests she had been forced by her rather brutal father to enter a mill where she hated the daily association with crude and uncongenial men. The endocrine anomaly indicated by her obesity in the thirties had not given any overt sign at an earlier period when the mental deterioration was already well-marked.

Case 5.—Deterioration in a young man with onset of mental difficulties about puberty in a troubled home situation, sometime after an unprovoked assault; during adolescence increasing seclusiveness, tension, consciousness of inner disharmony, preoccupation with physical appearance. From 18 to 29 apathetic, usually without initiative or evidence of interest in the environment, with rare episodes of emotional turmoil and aggressive behavior of unexplained origin; no marked disturbance of memory; speech incoherent and irrelevant. Very rare indica-

tions of hallucinations; attitude of discouragement, but little evidence of any persistent morbid ideas.

Peter Q.—Age 18 (born April 1, 1912). No occupation. Adm. Jan. 16, 1931.

Comments.—In this case the patient showed a marked loss of normal interest, spontaneity and emotion but even after several years he was noted as reading for long periods, as being neat and tidy and occasionally taking part in some occupation. In the early phase of the disorder he had talked of his sensitiveness, his feeling of inferiority, inner dispeace and malaise, his exasperation and bitter resentment. As the years went on no such explicit formulations were available, but from time to time there were unexplained episodes of destruction or assault. There was only an occasional and equivocal reference to hallucinations; his early misinterpretations seemed to be in keeping with his sensitiveness and embittered mood. Orientation and memory showed no definite impairment.

The boy had early given evidence of a difficult personality, and the home atmosphere had been extremely unfavorable. The patient resembles Case 2 in his odd bodily sensations and feeling of mental tension, the seclusiveness, irritable discontent, and unexplained outbursts of aggressive behavior. In the history of both cases mention was made of an accident, but there was little evidence to connect the physical injury with the onset of the disorder.

Case 6.—Simple deterioration in a young woman of rather poor mental endowment, disfigured by small-pox; onset in the early twenties with discouragement, sensitiveness, loss of interest, then increasing silence and resentment; morbid preoccupation with her teeth, prejudiced view of hospital treatment, otherwise no morbid ideas; no definite evidence of hallucinations. Mute and uncooperative with hospital staff but communicative with mother; occasional odd attitudes and grimacing; for last five months of her life definite evidence of pulmonary tuberculosis; death at 33.

Sylvia T.—Age 30 (born Dec. 23, 1898). Store clerk. Adm. April 22, 1929.

Comments.—In this case the seclusiveness and marked reduction in interest and spontaneity were accompanied by emotional reactions which were in keeping with her actual difficulties, as in Case 5.

The family atmosphere had been very trying, the patient was physically unattractive, a failure from the social and the occupational standpoint. She became discouraged and resentful, irritable and quarrelsome, preoccupied with various physical complaints. Hallucinations played no part in the clinical picture; she had no delusions beyond some distorted ideas about her physical condition, and her accusations that nurses and physicians neglected her. In this case as in Case 2 pulmonary tuberculosis developed in the course of the psychosis.

Case 7.—Simple deterioration in a quiet and stable young man, exposed to no unusual strain, beginning at the age of 28 after loss of his job; onset with seclusiveness, indifference to work, visits to church, threatening attitude to family, queer repetitive movements ("gymnastics"), elusive remarks; no definite evidence of hallucinations nor delusions, but various ruminations. Throughout the following twelve years he was as a rule apathetic and incoherent, showed little interest and spontaneity, occasionally gave fragmentary evidence of vague hallucinations and special preoccupations.

Thomas U.—Age 29 (born Nov. 10, 1899). Salesman. Adm. April 19, 1929.

Comments.—In this case the first phase of the disorder seemed to be a condition of discouragement and surrender in face of the difficult economic situation. With his meagre reserves of initiative soon depleted the patient developed a striking indifference to responsibility for self-support and for normal contact with his fellows. In this condition of apathy and social detachment he was still occupied with empty religious ideas and with ruminations about his failure. During the following ten years he continued to show lack of spontaneity and of interest in the environment. Thought and behavior showed peculiar disorganization. His utterances were frequently so odd as to be unintelligible; he seemed occasionally to have abnormal sen-

sory experiences (smell, touch, hearing) vaguely recognized as subjective; at times there were bizarre movements and postures.

The clinical picture presented by this patient is somewhat more complex than that of the previous cases, and at its onset seemed to be related to a feeling of discouragement. The loss of interest and initiative and the seclusiveness seemed to be quite out of proportion to the disturbance of mood, and to have the same significance as in the other cases.

Case 8.—Simple deterioration in an adolescent, a "model" boy brought up by devoted but eccentric parents; onset with revolt against the parents, self-assertion, rejection of conventional standards; marked loss of spontaneity and interest, great inactivity, empty smiling and laughter; physical habitus somewhat feminine, exaggerated deep reflexes, tendency to cog-wheel rigidity, lack of some associated movements, periods of pill-rolling movements.

Continuation of apathetic, seclusive, vacant behavior during the following eleven years, with occasional impulsive aggressive and destructive behavior, frequent masturbation; no indication of any special trends of phantasy or rumination.

Adam B.—Age 17 (born Aug. 26, 1912). Student. Adm. March 10, 1930.

Comments.—From the beginning of the mental disorder, ushered in dramatically by unwonted self-assertiveness and defiance of his parents, the most striking feature was the extraordinary apathy, loss of spontaneity and of response to ordinary social demands. The loss of interest, initiative and external response was not accompanied by evidence of any abnormal mental content, either delusional or hallucinatory; it is true that in the course of years there was an occasional reference to being "picked on" and a very rare and uncertain suggestion of hearing voices. The patient had apparently some appreciation of his abnormal state, at one time referred to being insane. With the reduction of the higher functions, more crude and automatic reactions appear: unmotivated laughter, smiling and grimacing; explosive assaults and destruction; periods of enuresis

and masturbation; minor and variable neurological symptoms such as pill-rolling movements, and absence of associated movements.

The lad had been a very odd boy for years, he had been brought up by most eccentric parents; there was no unequivocal history of an attack of encephalitis, but this could not be ruled out. The evolution of the case has many features in common with Case 1.

Case 9.—Simple deterioration in a young woman of poor endowment (I. Q. approximately 80), brought up under very unfavorable circumstances; self-centred, narrow interests, with little evidence of affection, few friends; masturbation from childhood. At 20 illegitimate childbirth; shallow inappropriate behavior. At 26 owing to promiscuity, inefficiency, day-dreaming admitted to hospital. For the following 10 years a parasitic existence, with lessening interest and spontaneity; a few erotic phantasies, occasional assaults, episodic wetting; rare hallucinations. ? Petit mal seizures.

Olive P.—Age 26 (born July 20, 1905). Waitress. Adm. Sept. 22, 1931.

Comments.—The patient even as a school-girl had shown a peculiarly rigid self-centred personality with almost complete lack of affection, save for her father. She seemed to have no appreciation of the conventional sexual values, referred to her masturbation and sexual promiscuity with no evidence of shame. Her behavior during an illegitimate pregnancy showed a striking moral anaesthesia, and her conduct was completely self-centred, selfish, inconsiderate, pretentious and childish. For several years after the pregnancy she seemed to live a superficially conventional, if narrow and seclusive, office life, while in reality she indulged in crude promiscuity with no trace of romance. After this period her apathetic, self-absorbed attitude, her inefficiency and lack of spontaneity made hospital care necessary. Her superficial appearance and bland discussion of her condition and general situation were in striking contrast with the glaring defect in her conduct and the absence of the normal springs of action. During the following years she continued to show the same strik-

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ing absence of spontaneity and of interest, and lived a parasitic life. She indulged in simple erotic or romantic phantasies, accompanied occasionally by appropriate auditory hallucinations. With withdrawal of control by the superior functions, there were periods of wetting and soiling, occasional impulsive attacks, frequent silly smiling. Since puberty there had been occasional "absences" of epileptiform nature.

REVIEW OF VARIOUS FACTORS IN THE NINE LIFE HISTORIES

On reviewing these histories one sees little evidence to suggest that the varied incidents and serious deterioration are the manifestation of any familiar type of morbid process. The patient may have shown this or that bodily handicap or ailment, but on the whole the evolution of each case shows little relation to any special group of physical symptoms. In most of the cases the exact date of the onset is difficult to specify for there is no abrupt discontinuity in the individual life; the individual insidiously passes from his earlier phase of tolerable social adaptation into the later stage of manifest social incapacity. With no physical disorder to explain the change in the personal equilibrium, and in the absence of any catastrophic situation one scrutinizes the evolution of each case to see what combination of factors may perchance throw light on the final shipwreck.

Heredity.—Only 1 of these patients came from so-called normal parents, and in this solitary case the relevant data were meagre. Eight out of the 9 patients came from poor stock with insanity, alcoholism, eccentricity in the antecedents and collaterals.

Personal Equipment.—The early history of the majority of these patients showed that they were poorly endowed mentally. They were in general dull scholars; 3 did not get beyond the seventh grade. It is true that 1 did manage to scrape through high school but intelligence tests only granted her borderline intelligence.

As to their neurological history, 1 had minor motor disorders from early childhood (fall in infancy with unconsciousness), 1 had slight speech defect, 1 had twice been knocked unconscious, 1 had occasional "absences" (? petit mal).

As to significant *personal traits*, 4 were noted in childhood as docile and not assertive, 1 was asocial, 1 was self-willed.

Conditioning Factors in Childhood.—In no case was the home environment favorable to the development of the child. In the least unfavorable home the child lost his father at 8 years, was brought up in straitened circumstances. As to the other 8 patients with unfavorable childhood circumstances, in 2 the parents were absurdly over-solicitous, in 6 the home atmosphere was made unwholesome by an alcoholic, obscene, tyrannical, jealous or nagging parent.

Occupational Level.—Five of the 9 patients had been able before their psychosis to hold steady jobs for a period of years. The other 4 had had no job or only odd jobs for brief periods.

Sex Life.—In 1 case there was excessive and crude heterosexual indulgence. In the other 8 cases the sex life was very immature, at the most expressing itself in masturbation. Masturbation played quite a minor rôle as a rule in the symptomatology of the psychosis.

Time-relations of Onset.—In only 1 case was the onset given a fairly precise data ("7 weeks before admission, after flu," according to his mother; but 4 years previously he was "the most peculiar boy I ever had in school," according to a teacher).

In the other 8 cases the onset was very insidious, in many of them there seemed to be little discontinuity between the early anomalies of disposition and the later symptoms of the established disorder.

Prominent Symptoms at Onset.—In 8 cases the outstanding feature of the onset was *seclusiveness* with reduction of activity, accompanied in 3 cases by discouragement. In 2 cases an early symptom was revolt of the lad against a possessive mother.

Emotional Outbursts During the Psychosis.—In the course of the psychosis 8 patients showed, either earlier or later, occasional outbursts of blind rage or episodic assaults. It is possible that some of these outbursts were in reaction to irritating circumstances; they were the only marked emotional reactions of the patients. In one patient throughout the psychosis there was a

complete absence of any overt expression of anger.

Inappropriate Laughing and Smiling.—In 5 out of the 9 cases inappropriate smiling, grinning, giggling or laughter were noted from time to time during the course of the psychosis.

Hallucinations.—In 1 case there was no evidence of hallucinations. In the other 8 cases hallucinations played a quite incidental and trivial rôle, were only occasional, usually rather vague, and often with little apparent significance.

The following statements from patients illustrate the relevant data: "it is a man's voice," "I might have heard voices," "he called me yellow."

Delusions.—The patients showed little tendency to build up a distorted picture of the external world which would do justice to their special needs and difficulties.

In 4 cases there was no evidence of delusions; of the other 5 cases, 1 denied the identity of his mother, 1 had vague ideas of hostility, 1 had hypochondriacal ideas, 1 had scattered delusions of persecution, 1 had a simple wish-fulfilling erotic delusion.

Thought Disorder.—In 7 out of the 9 cases there was occasional incoherence; 7 patients became very uncommunicative during the later period of their psychosis.

Memory.—In contrast with the marked deterioration in the interests and behavior of the patients, memory showed comparatively slight impairment. Even 10 years after the onset of deteriorated behavior the memory might be noted as "fair" or even "good."

Crude or Regressive Behavior.—In 8 out of the 9 patients there was deterioration in personal cleanliness, with variations in degree from time to time. In 2 cases bed-wetting occurred occasionally; 2 patients spat on the floor.

Motor Reactions.—In 8 out of the 9 patients interesting motor reactions were observed; grimacing was observed in 5 patients, mannerisms in 5, 2 maintained fixed positions, 1 seemed to experience the movements as compulsive.

SUMMARY

The scrutiny of this small group of patients, presenting a serious deterioration of

insidious onset, reveals as outstanding factors the constitutional inadequacy of the individual patient and the unfavorable external factors which conditioned and frustrated him.

Two of the patients developed pulmonary tuberculosis, but the clinical picture and course in these 2 patients were not markedly different from those of the other 7 patients. One may say that in this group the physical examination revealed no adequate cause for the onset of the deterioration.

The clinical picture and course of the mental disorder in this group may be outlined as follows: The patient in adolescence or early adult life, without any adequate explanation in the way of physical illness or drastic change in the environment, begins to show a striking loss of sociability, initiative, interest and personal care. The course is as a rule steadily downwards, ending in a parasitic existence at a very low level.

With the abeyance of the superior functions, with the loss of social response, of spontaneity, and of interest, there occur, perhaps as release phenomena, reactions of a lower neurological level—meaningless smiling and laughter, explosive outbursts of anger, occasional autoerotism, mannerisms and grimaces, automatic movements. Memory may be retained to a surprising extent; incoherence is frequently noted but the patient is uncommunicative.

There is no special manifestation of basic urges, of underlying preoccupations, of repressed and dissociated factors. There seems to be a lack of vital energy associated with the egoistic as with the more complex social trends. The condition is one of defect rather than of conflict. In the comparative absence of tension, or turmoil, of compensatory strivings or phantasies, the clinical picture makes the impression of self-abandonment, of surrender, of acceptance of life at a lower automatic level. This surrender may be further evidence of the constitutional defect of vitality of the organism already indicated in childhood and made more manifest in face of the demands of the independent, mature, social life. The challenge of life to these underprivileged, poorly conditioned, and frustrated individuals is beyond their capacity. While others with somewhat different endowment react with hysterical or com-

pulsive evasions, with affective slumps or
sprees, with imaginative phantasies or re-
gressive dramatisations, this group differ-
ently endowed reacts to the challenge with
a simple surrender.

If we continue to retain these patients
within the hospitable group of schizophrenia,

it may be legitimate to characterize their
special type of reaction as schizophrenic
"surrender." In the further analysis of the
conditions of this "surrender" the inade-
quacy or abiotrophy of component systems
of the organism requires to be investigated
and evaluated.

THIRTY CONDEMNED MEN

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I. INTRODUCTION

In the course of the past three and a half years, upon request of the Governor's Advisory Pardon Board, I have examined thirty condemned men, in consecutive series, in San Quentin Prison, California.

It is routine practice for such men to make application to the Governor for commutation of their sentence from death to life imprisonment. Following such application, the case is referred for investigation to the Advisory Pardon Board which consists of the following members, serving *ex officio*: the Lieutenant Governor, the Attorney General, the Chief of the Division of Criminal Identification and Investigation, and the wardens of San Quentin and Folsom Prisons. The Board's investigation generally includes at least one psychiatric examination of the prisoner.

Prior to my examinations of these men, they had all been tried in the Superior Courts of their respective counties, convicted of murder in the first degree, sentenced to death; and both the verdict and sentence had been sustained by the Supreme Court of the State.

Regarded as clinical material, this collection of cases is in some respects unique. The Governor's files contain full transcripts of the court hearings, reports of the Advisory Board's special investigator, medical reports, a great deal of relevant correspondence, the decision of the Supreme Court, and other data seldom available in psychiatric practice. These data are supplemented by material contained in the medical files of the prison, and, of course, by additional case history obtained by myself from the prisoners and from their relatives and friends.

The object of this communication is to present the more outstanding findings yielded by this material, together with a brief discussion of their significance.

The ages given in the case abstracts are as of the time of the offense.

II. THE CASE ABSTRACTS

CASE 1.—F. C., No. 60416. A Mexican, 48 years old, of below-average intelligence, with such lack of knowledge of English that he had to be examined through an interpreter. He had been for years a habitual but moderate drinker of beer and gin; upon occasion would drink to excess. Not a criminal type; his personal history is consistently one of a hard-working, law-abiding citizen.

At about 1.30 a. m., March 17, 1937, in a jealous rage, he killed his "woman," whom he had found consorting with a negro, by stabbing her with a large pocket knife "four or five times, maybe more," after she had defied him in the early part of the evening and after he had consumed, in the course of eight hours, at least a dozen bottles of beer and five or six drinks of gin "to drown the sorrow."

Recommendation of the Advisory Pardon Board was against commutation of sentence. The Governor, however, commuted the sentence to life imprisonment.

CASE 2.—B. B. A., No. 61781. Filipino, 27 years old, of below-average intelligence, and having very limited knowledge of English. No prior criminal record. He had worked as orderly in a hospital in Oakland for about four years preceding his offense.

For two or more years prior to his offense he had living with him a white girl upon whom he lavished most of his earnings: "supported her, bought everything for her, diamond ring, watch, all that she wanted." Upon returning home from his work one Saturday in the latter part of 1937, he was greatly outraged to find that she had left the apartment, taking with her all the presents he had given her, and leaving no message of explanation. He lapsed into a severe reactive depression with loss of sleep, loss of appetite, loss of weight, inattention to his work, etc.

A few days later, armed with a gun, he sought her out in a Filipino pool room and restaurant, where she had gotten a job as a waitress. Upon her refusal to come home with him he attempted to shoot her, but missing his aim developed an uncontrollable rage. She tried to run away, and in his pursuit he killed, not the girl—who succeeded in getting away—but three bystanders, and wounded several others, now using his gun, now a pair of shears which he had grabbed, in the course of his fugue, in a nearby barber shop. Later he stated that he had had no intention of killing and wounding all these innocent people, but that he had "completely lost all senses."

Recommendation of the Advisory Pardon Board was against commutation of sentence. The Gover-

nor, however, commuted the sentence to life imprisonment.

CASE 3.—C. D., No. 54852-A. A 23-year-old white man, born in South Carolina. In early childhood, amidst great poverty in the home, he developed a severe, almost fatal case of pellagra, lasting over two years. The history, following recovery from the pellagra, is one of almost uninterrupted delinquency and criminality: truancy, neglect of studies at school, running away from home; a term in the Federal Boys' Reformatory at Chillicothe, Ohio, for forging and cashing a government check; a term in San Quentin Prison, California, for robbery; occasional smoking of marijuana, and the like; finally the crime of murder, which occurred as follows:

For some time he had been dickering with his prospective victim for the purchase of some field glasses and other articles. On the fatal day he requested his victim to call on him at the ranch where he was employed. There he suddenly confronted his victim with a gun, bound his hands together with wire, drove him down a lonely road, then took him out of the car, smashed his skull with the stock of a rifle, and left him dead beside the road, having first robbed him of \$30 in cash.

His defense consisted solely of a plea of insanity, but he was adjudged sane and therefore guilty.

The Advisory Pardon Board recommended that his application for commutation of sentence be denied, and he was executed July 21, 1939.

CASE 4.—W. G. S., No. 59240-A. White American, 21 years of age, of above-average intelligence (I. Q. 115). He was brought up under conditions of poor mental hygiene: parents were separated when he was five years old and divorced when he was eight, at which time he was placed in an orphanage. At 14, in the depth of the depression, he was faced with unemployment and a complete blocking not only of his plans for further education but also of a chance to earn enough for food and shelter, so as not to have to beg and sleep in the parks. Under these circumstances there was no record of juvenile delinquency or placement in a correctional institution, but eventually, in November, 1935, a rather sudden turn toward burglaries, committed thereafter at the rate of two or three times a week, "every time I ran out of money."

The murder which led to his conviction and death sentence was committed January 3, 1936, when he was surprised, in the act of one of the burglaries, by a neighbor who had been summoned by the maid of the house and who pointed a pistol at him and ordered him to hold up his hands. He felled the neighbor with a bullet, shot him thrice after he had fallen, and escaped through a window.

He continued his burglaries, and in June, 1936, was received in San Quentin Prison following conviction of one of them. While there he disclosed to a fellow prisoner, who was expecting soon to be discharged, the fact that he was wanted for shooting "some fellow by the name of Cox." His object in communicating this information was to

secure his fellow prisoner's cooperation in killing the maid who had been the only witness of his murder. The fellow prisoner, however, reported to the prison authorities, and this led to the conviction for murder in August, 1938.

The Governor's Advisory Pardon Board recommended against commutation of sentence. He was executed September 8, 1939.

CASE 5.—H. A. F., No. 60710, a 27-year-old white American. He and his family owned the principal newspaper in Alturas, Modoc County. In 1934 they purchased and absorbed the only other newspaper in that town, thereby throwing out of employment McC., its editor. McC. thereupon started a small biweekly newspaper of his own, in which he habitually included articles reflecting on the defendant's family, and more particularly his mother. The defendant described these articles as indecent and libelous, in which his family were defamed, humiliated, and insulted. However, they were couched largely in innuendo and could not be used as a basis for a libel suit or criminal prosecution.

This continued for a couple of years, causing the defendant a steadily mounting irritation, until finally, in March, 1937, he drove to McC.'s residence, walked into the kitchen, where McC. and two women were seated at a table, and immediately opened fire, shooting his victim four times.

The trial was on the two pleas of not guilty and not guilty by reason of insanity. He was, however, found guilty and sane.

The Advisory Pardon Board made the following recommendation: "The Board feels that there were facts and circumstances surrounding the case of sufficient provocation to justify the exercise of executive clemency by the Governor in commuting the death sentence of the above-named to life imprisonment. Further, the Board observes from the record that F.'s general conduct, activities and behavior prior to the commission of the crime had been entirely proper and satisfactory."

On August 16, 1939, the Governor did commute the sentence.

CASE 6.—W. G., No. 62216. Part-white negro, 38 years old, with a record of prior felonies.

For a number of years an eccentric elderly man, possessed of some means, lived alone in a shack in "Shanty Town" or "Hobo Jungle" in Fresno, California. His property consisted mainly of money in the bank on which he would draw, at intervals of several years, amounts of a few thousand dollars, a good deal of it in gold coin or in \$100 bills. On April 4, 1938, his body was found buried in a shallow grave about a mile from where he lived. In the grave was also a short length of pipe. The coroner's inquest revealed fracture of the skull and injury to the brain, as the cause of death, brought about by the use of the pipe.

The victim had been last seen alive on March 21, 1938, in the company of the defendant. Evidence was soon gathered connecting the defendant with the murder and with robbery of his victim of a watch, gold coins, some \$100 bills.

Interviews with the prisoner in "condemned row" revealed complete lack of compunction with reference either to his last offense or to any of his previous ones. He denied all guilt, said he had been framed on this and all previous occasions, that over seventy witnesses had perjured themselves in testifying against him, that his own attorneys had betrayed him.

The recommendation of the Advisory Pardon Board was to the effect that his application be denied. He was executed October 20, 1939.

CASE 7.—C. A. McL., No. 62125, 55 years old, of mixed parentage, American and Mexican. The special features of this case are, first the existence of alcoholism, both chronic and acute as an essential etiologic factor; and, secondly, the fact that in his sober state the defendant was by no means of a criminal type. He was well known by his neighbors for 30 years; even the mother of the murdered child testified that he was a kindly, well-disposed man, and his previous reputation could not be questioned.

In the morning of April 14, 1938, when the offense occurred, he drank whiskey and a large amount of wine out of a half-gallon jug until he became markedly intoxicated, and thereupon went into his shack and lay down. At about 11 o'clock, or shortly thereafter, Jennie M., a 6½-year-old girl living in the neighborhood, came into his shack to pay a friendly visit. He took her upon the bed and began to fondle her in an improper way. This caused her some pain and she made an outcry or two, whereupon he reached for a hammer near his bed and struck her twice on the head, crushing her skull and killing her instantly. This he admitted in his confession. But he also caused lacerations of her vagina and rectum, which he claimed to be unable to recall.

He entered the pleas of not guilty and not guilty by reason of insanity, and waived a jury trial on each of these pleas. He was found guilty and sane.

The recommendation of the Advisory Pardon Board was against commutation of his sentence. He was executed September 15, 1939.

CASE 8.—P D'A., No. 62534. The prisoner, a 46-year-old, almost illiterate man of Italian birth, had been in this country about 25 years. He has no prior criminal record; but has worked since childhood as janitor, vegetable peddler, etc.; later built up a window-washing business of his own, which was successful, but failed in 1933 on account of the depression; later he established a small store of groceries and school supplies. Was something of a leader in an Italian-American organization (Sons of Italy in America). Never dependent; never on relief. He was married at 20 years to a girl of 18, who bore him fourteen children, only three of whom are now living. Has supported not only his family, but also his wife's mother and sister: "I gave her everything." Since 1930 there has been a great deal of marital maladjustment with quarrels and scenes over money and over his accusations of unfaithfulness. There were separations, divorce suits, a reconciliation for a time,

and steadily increasing bitterness. All who had known the prisoner—whether friendly toward him or otherwise—have recognized him as being emotionally unstable in a marked degree.

On the morning of June 14, 1938, he went to his wife's home and decapitated her with a meat cleaver.

His one-time attorney describes an interview with him about half an hour before the homicide, as follows: "On the morning of the homicide, at the request of Mr. D'A., I called at his place of business about a block and a half from his wife's store. He had telephoned two or three times the previous evening to my wife demanding that I put in an appearance before going to my office. He again telephoned in the morning. I went to his place of business. He was standing on the front step and beckoned me in without saying a word and closed the door behind me. After the most furious and unintelligible tirade I have ever listened to, I was finally able to glean that his wife, the previous day, had finally succeeded in collecting the \$25 rent from the other property owned by the parties and had given certain instructions to the tenants not to pay him any more rent. Mr. D'A. at times, during his conversation, was completely beyond control and beside himself. The entrance of the iceman gave me an opportunity to break into the fury of his tirade and leave the place, but I had not in the slightest succeeded in reassuring Mr. D'A. that matters would be righted in the end. Instead, he yelled and repeated over and over again that dancing had been stopped in his little business at the instigation of his wife; the wife no longer wanted to live with him; she had all the property; in any event the courts would give her all of it anyhow; the attorneys were not protecting him at all; she was cohabiting with her own attorney. The Home Owners' Loan Corporation had written him a notice which, try as I might, I could not explain to him at the time: it was a simple request that the parties appear for a readjustment of the terms of their loan. I later learned that, within one-half hour after I left, Mrs. D'A. had been murdered."

He was tried on the dual plea of not guilty and not guilty by reason of insanity, and found guilty and sane.

The Advisory Pardon Board, represented by but four of its five members, was evenly divided in its recommendation, two being for and two against commutation of the sentence from death to life imprisonment.

Under date of November 2, 1939, the prisoner's three daughters addressed a communication to Governor Olson containing the following request: "Now that the final decision rests with you, we pray that you will consider our feelings and judgments in this case, as we have a blood tie to both the victim and the prisoner; and owing to the brutality of the case we cannot have any other feelings. You being our last resort, our only hope is that you will uphold the original sentence of death. Hoping this matter will be cleared soon, as it has been a severe strain on us."

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In a communication addressed to the Advisory Pardon Board, under date of July 8, 1939, the trial judge made the following statement: "The evidence in the case was such that it did not permit of any other verdict than one of murder in the first degree. However, a recommendation of life imprisonment would, in my opinion, have been in order. While the defendant was in no sense insane so as to exculpate him from legal responsibility for the atrocious crime which he committed, nevertheless the circumstances were such that, coupled with the eccentric qualities of his outlook and his mental, emotional and nervous make-up, I rather feel it would be proper for the Governor to commute his sentence to life imprisonment."

In my own report on this case, made to the Advisory Pardon Board, under date of September 25, 1939, the following is contained: "This case seems to be one of many in which very marked and very obvious mental abnormalities exist, but not insanity in the legal sense of the term. The mental abnormalities are so plainly in evidence in this case, or at least can be so readily and quickly elicited by proper examination, that any lay person could perceive them without difficulty. These abnormalities were brought to light in the course of the behavior and utterances of the defendant when he testified on his own behalf as a witness during his trial. Almost every sentence of his testimony, as it appears in the official transcript, reflects his mental abnormalities. At the time of my examination of him, he revealed, in marked degree, emotional instability, a strong paranoid trend, and various hysterical manifestations. The events immediately preceding the offense, the offense itself, and the prisoner's behavior immediately following it, certainly indicate the existence of a rage which would preclude the possibility of the exercise of a full judgment and deliberation."

The Governor commuted the sentence from death to life imprisonment.

CASES 9 and 10.—W. F. K., No. 62722, and N. A., No. 62721. These men, 27 and 22 years old respectively, had been friends for several years. For a few months prior to the murder and robbery in which they were involved, they roomed together in Fresno, California, where, by their admission, they had jointly carried out a series of thefts and robberies.

At about 10.30 p. m., July 17, 1938, they stationed themselves at a busy street intersection, and, as their victim, G. E. W., came along in his automobile and stopped on the red signal, they stepped from the curb and forcibly entered the car—A. on the right side, flourishing a gun, and K. going around and entering on the left side, the victim being pushed over to sit between them. K. immediately took the steering wheel and drove the car on, while A. shot the victim five times. Thereupon they stopped the car, got their victim out on the sidewalk, robbed him of \$70, left him there, and proceeded to another point where they abandoned the car. They were later apprehended—A. in Nevada and K. in Utah.

In the case of K. there is a history of a fall from

a horse at the age of less than 3 years, resulting in a skull fracture for which he was laid up in the hospital; he still showed an old scar over a palpable linear bone depression in the right fronto-parietal region. At 17 years he had a severe attack of scarlet fever complicated with pneumonia and with delirium for a few days. He left school at 13 years to go to work. There was no serious behavior difficulty in childhood or adolescence. He began to drink at the age of 18 and by the time he was 25 years old, i.e., about two years prior to the murder, his drinking was steady and excessive, averaging over a pint of whiskey daily. His occupation was that of bartender. He married in 1934, but was separated from his wife and their two young children in February, 1938. He had a great problem of unemployment for some years, and attributed both his domestic maladjustment and his final drifting into a criminal career mainly to unemployment and intemperance. He lived the greater part of the time in recent years in Las Vegas, Nevada, where alone it was often possible for him to obtain employment as bartender, and where he was in an environment of drinking, gambling and vice. During the day of the offense, and especially during a couple of hours immediately preceding, both men had been drinking heavily. For some hours following the offense K. was in a stuporous alcoholic sleep.

A., the younger of the two, who happened to have been the one to hold the gun and do the shooting, presented in some respects a similar history of unfavorable environment, chronic alcoholism and a problem of unemployment.

His last employment was for a taxicab company in Las Vegas, which was but partial and irregular, between November, 1937, and May, 1938, on a commission basis with earnings barely reaching \$30 a month. He had a record of two prior felony convictions.

The recommendation of the Advisory Pardon Board was that the applications of both men for commutation of sentence be denied. The Governor, however, granted the commutation in the case of W. F. K. In the case of N. A., the governor granted a reprieve pending action by the Supreme Court, required under the law by reason of his record of prior felony convictions. The Supreme Court withheld its authorization of executive clemency, and the prisoner was executed March 15, 1940.

CASE 11, V. S., No. 63258. Italian, 58 years of age. For many years the support of this man's family, which consisted of himself, his wife and five children, was provided mainly by his wife, who worked as a domestic, and for the rest, by the children, while he spent his time in idleness at home. It appears further that with at least two of his daughters he had incestuous relations, with one of them since she was a child of eight years. There was a great deal of quarreling between him and his wife, the latter having either known or suspected his incestuous relations.

This situation led to his brutally murdering his wife with a hatchet, dismembering and incinerating

her body, and manufacturing forged evidence purporting to show that she had run away to Mexico or South America with another man.

He entered pleas of not guilty and not guilty by reason of insanity; but was found guilty and sane.

Not the least striking feature of this case throughout, was the defendant's utter lack of compunction in connection with his parasitic existence, his raping of his daughters, and his brutal murder of his wife. His sole preoccupation through it all has been with schemes to escape detection, conviction and punishment.

The Advisory Pardon Board recommended that the prisoner's application for commutation of his sentence be denied. He was executed May 17, 1940.

CASE 12.—W. B. M., No. 63159, negro, about 18 years old. He had been an amateur and semi-professional fighter. Some time in 1936, when not quite 17 years of age, he met a 25-year-old negro girl at a night club in Sacramento, and in the course of a few months they went to live together. This girl, Fannie, had had affairs with other men, and on a number of occasions while living with the defendant, she had "run off" with others. He had fights over this both with her and with her boy friends, in one of which he got his jaw broken. He greatly resented her interest in other men, especially as she was partly supported by him and often accepted money from him. He is of rather intense temperament, quite unstable, and this may be due, to some extent at least, to a head injury at the age of about 14 when he tried to get on a moving freight train. He cannot recall the details of the accident as he lost consciousness for a period of about 20 minutes. He now has a large horseshoe-shaped scar on the scalp over the left temporal and occipital regions. In November, 1937, Fannie left the defendant. He called on her a couple of times, but she would not go back to him. On November 21, he called on her once more, this time armed with two guns. He asked her to fix him something to eat, but she said, "I don't have anything to eat. This ain't my house." Then he said, "How about some of my money then?" to which she answered, "I ain't got time to fool with you. I am busy." He then said, "You ain't going to fix it?" and pulled out the two guns. Whereupon she said, "Oh yes, I fix it, I fix it," and ran across the room, but he shot her several times, inflicting six bullet wounds. He was eventually arrested in St. Louis.

The recommendation of the Advisory Pardon Board was against commutation of sentence. The Governor, nevertheless, did commute his sentence to life imprisonment.

CASES 13 and 14.—J. A. L., No. 55500a, and L. H. W., No. 58229a, 33 and 31 years old respectively. These two men, both with records of prior convictions for felonies, were convicted of murder and robbery alleged to have been committed by them a little after midnight, February 23, 1938, in a café in Hollywood. Their identification by witnesses was somewhat uncertain, more especially

that of W. Subsequent investigation brought to light the fact that eight witnesses, not called at the trial, stated definitely that these defendants had not been the ones who committed the murder and robberies of which they were convicted.

In view of the new evidence, the Advisory Pardon Board recommended commutation of sentence, and on April 30, 1940, the Governor granted commutation to life imprisonment.

CASE 15.—E. G. P., No. 62480, a white American, 28 years of age. An only child, of above-average intelligence, with a history of impulsiveness, instability, general untrustworthiness and delinquency dating back to childhood. He had been an inmate of Preston School of Industry at Ione, California; later of the Federal institution for delinquents at Chillicothe, Ohio; and more recently of the Federal prison at Ft. Leavenworth, Kansas. While at the latter institution he developed psychotic symptoms and was transferred to the Medical Center for Federal Prisoners at Springfield, Missouri. There the psychotic symptoms continued for several months. The diagnosis made both at Ft. Leavenworth and at Springfield was psychopathic personality with psychosis. Following recovery from the psychotic symptoms he remained at the Springfield institution 15 months, during which time his behavior was reported as excellent.

The murder of which he was convicted occurred in the evening of July 16, 1938, under the following circumstances: While employed on a laundry truck he was requested to give a young woman a ride to her home. On the way they had some drinks and, it has been alleged, he forced her to have sexual relations with him. He also asked her to meet him later at an ice-cream and candy store. She told her sister and brother-in-law what had happened, and they kept the appointment at the candy store. He was, of course, in danger of being once more sent to prison, this time for violation of parole. After some argument with the girl's brother-in-law at the candy store he whipped out a gun and shot the brother-in-law. Two weeks later he was arrested at Eureka, California, while driving a stolen car. He entered pleas of not guilty and not guilty by reason of insanity, but was found guilty and sane.

The recommendation of the Advisory Pardon Board was against commutation of sentence. He was executed August 16, 1940.

CASE 16.—R. G., No. 63241, a white American barely 21 years of age. In the summer of 1938, in a café in Oakland, he met a girl of about his own age. He did not see her again until the night of December 6, 1938, when he happened to meet her in the same café. On this occasion he took her to supper, they did a great deal of drinking in the course of the night; then they went out for a drive, reached a lonely spot on the outskirts of the city, stopped the car and talked. The girl expressed feelings of inferiority because she was too tall, often had pain from a chronic appendicitis, nobody cared for her. She said she was going to take poison and that even her parents would not miss her. He then took out a large hunting knife and

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told her she would not have the nerve to use it; but she grabbed it eagerly, and he had to twist it out of her hand. He then pointed the knife at the base of her neck and asked if she would be afraid to have it go all the way in. She said he would be doing her a favor. So, "without any more ado, I gave it a thrust." The heart was pierced and she died instantly.

He lingered for twenty or thirty minutes near the car, smoked nearly a package of cigarettes, the butts of which were later found strewn over the ground; observed from the hill the city lights in the distance, experiencing, as he later reported, a peculiar feeling of unreality—"what is it all about?" By that time dawn was breaking; he approached the car with the girl still in the seat and the knife handle protruding. He pulled out the knife, and then pricked her neck again a couple of times, to see if she would bleed. "She did not bleed, so I knew she was dead. Then he opened her purse and curiously examined the contents—a little money, a gold locket on a chain, a few other trinkets, none of which he took. He kept, however, a small snapshot of the girl, "as a souvenir to remember her by; she wasn't a bad kid," he later musingly remarked. Then he pulled out her body, left it in the ditch at the roadside, drove home and went to sleep. Later in the morning he appeared at the office in which he was employed, as though nothing had happened. They had not been lovers, there had been no quarrel. The murder had not been planned or premeditated and was without discernible motive. He later stated that he had intended to kill himself, too, with the same knife, but lost his nerve. The sole plea before the court was not guilty by reason of insanity, and the defendant waived a jury trial.

Among the possible etiologic factors found in the case history were the following: (a) A great many cases of insanity, epilepsy, alcoholism, suicide, and other social maladjustments on both the paternal and maternal sides. (b) Evidences of severe and extensive head injury at birth due to prolonged and difficult labor. (c) Abundant evidence, in his behavior toward his mother, also in the form of dreams, of chaotic sexual make-up. (d) Severe cerebral concussion at the age of 16 years. (e) Periodic drinking for about four years, and at least moderate acute alcoholism at the time of the offense. There was a great deal of behavior difficulty in childhood and early adolescence, many arrests for petty offenses, commitment to a correctional school.

There was conflicting testimony of psychiatrists, but, in the upshot, he was adjudged sane.

My own opinion, stated in my report to the Advisory Pardon Board, was to the effect that the prisoner was, and had long been, both medically and legally insane.

The Advisory Pardon Board recommended against commutation of sentence, and the prisoner was executed August 23, 1940.

CASE 17.—R. C. P., No. 63643. A 70-year-old white American whose home, he said, was in some remote spot in Alaska. Little of his history is

known, as he was a pathologic liar and swindler. He had a prior record of misrepresenting himself to be a licensed physician; was wanted in San Francisco for murder and bank robbery; convicted of first degree murder in the course of attempted bank robbery in San Diego, March 16, 1939. Recommendation of Advisory Pardon Board was against commutation of his sentence. He was executed July 19, 1940.

CASE 18.—L. W., No. 63611. A 29-year-old white American, with a history of drifting from boyhood toward a criminal career, including a prior conviction of burglary in Illinois. There was also habitual heavy drinking, and conclusive evidence that at the time of the crime of which he was last convicted he was strongly under the influence of alcohol.

This man, together with three other men and a woman were involved in a hold-up, murder and robbery, committed in a café in Los Angeles at 1 a. m., March 20, 1938. Immediately following this episode all the five left California and scattered after reaching Phoenix. The other four were apprehended and tried together: one of these was acquitted; another was convicted, but had his conviction reversed on appeal; the remaining two, including the one who had the gun and did the shooting, were convicted and sentenced to life imprisonment.

W. was later apprehended in Illinois, returned to California, tried before another judge and by another jury, convicted of first-degree murder and sentenced to death.

In view of these facts, the District Attorney, Sheriff and later the Advisory Pardon Board, recommended that his sentence be commuted to life imprisonment. The Governor acted favorably on this recommendation November 9, 1940. On November 5, 1941, he was transferred to Folsom Prison, because on October 28, 1941, he had attacked a fellow inmate at San Quentin with a pair of shears.

CASE 19.—J. J. C., No. 62953. A 28-year-old man, born in California, of Mexican parentage. He killed his two sons, 6 and 3 years old respectively, and attempted suicide, as a result of his wife's alleged unfaithfulness.

At the age of 21 years he married, his wife being 16 years old. Marital maladjustment developed soon thereafter. The wife left him, for the third time, about 15 months before the date of the offense. During this time "things went from bad to worse; she was running around with another woman's husband; my little boy told me that he saw this man and my wife kissing on the bed." His wife, having deserted him, nevertheless exacted money for her own support and that of the two children. He sought help from the District Attorney, the police, the priest and others, without obtaining any satisfaction. He brooded over this a long time and for at least a month was contemplating the killing of his two children and his own suicide.

At about 10 o'clock in the evening, October 9, 1938, he was seen rushing out of the one-room

shack in which he lived, and to which he had taken his children for the night, exclaiming, "My God, I have killed my kids!" Thereupon he cut his own throat with a straight-edge razor, walked back to the entrance to his shack, and fell at that point. The neighbors summoned the police, who found the three-year-old child with two hatchet gashes in his forehead, the bed covered with blood, and brain substance protruding from the wounds and scattered on the bed and on the floor. The six-year-old child, too, had a hatchet gash in his forehead and bleeding cuts at his wrists.

He told the officers, "You will find confessions on the bureau." One of these was a letter, addressed to his wife and containing the following: "The End. Tillie: You've reached the end. Honest! I really loved you with all my heart. But you preferred another man worse than me. You know it. But you gave up happiness a home and your children. I've given you lots of chances to change and see things right. Like a real Human would. But since you don't care it's tough for you, cause me and the boys aren't going to see it, cause they aren't to blame for what you and I do. So since they are part of me, they are going with me. Look, if you had the heart and nerve to bring your lover in front of me to give me the 'razz' well I have the heart to do what I did.—And so now if you can't take it it's up to you. Cause I warned you."

He was tried on the dual plea of not guilty and not guilty by reason of insanity, but was found guilty and sane.

The recommendation of the Advisory Pardon Board was in favor of commutation of sentence from death to life imprisonment, and on July 9, 1940, such commutation was granted by Governor Olson.

CASE 20.—L. W. S., No. 63642. A 62-year-old white American, presenting a history of drinking over a period of at least 25 years, leading repeatedly to loss of employment. In his early fifties, when he suffered a fracture of the elbow, he had no place to go other than the county poorhouse. After the elbow had healed a placement was found for him on a small ranch where he was to do light work for his room and board and occasionally a small tip or a supply of wine as a bonus for some special chore. In the course of six or seven years on that ranch he developed a growing simmer of resentment against his employer, who, by reason of hard times, could not afford to give him better pay for his work.

On March 8, 1938, after he had consumed nearly half a gallon of wine, and following a trivial dispute over the weather, he killed his employer by striking him from behind with a stick of firewood. All evidence would seem to indicate that he was then in a state of marked alcoholic confusion. He was arrested, and immediately lapsed into a stuporous sleep which lasted about twenty-four hours. There is no prior criminal record.

He entered the dual plea of not guilty and not guilty by reason of insanity. The trial on the first plea resulted in a verdict of guilty without recommendation as to the sentence.

In the course of the trial on the second plea he was found sane, but the jurors had difficulty in arriving at this decision. They asked for further instructions from the court, saying, "If we had had, yesterday, the evidence that was presented today, there would have been an entirely different verdict." They were instructed, however, to limit themselves, on this occasion, to a consideration of the issue of insanity.

Upon appeal, the Supreme Court upheld the verdict. However, Justice Houser rendered a dissenting opinion to the effect that the offense should be reduced to second degree murder. The trial judge, too, stated later: "Had I tried this case without a jury, I would have imposed a life sentence."

The Advisory Pardon Board recommended commutation of sentence to life imprisonment, and on June 27, 1940 the Governor acted favorably on this recommendation.

CASE 21.—F. D. K., No. 49068. A 57-year-old white American of Polish descent. He lost some money in stock-market investments and attributed his losses to the manipulations of some members of a financial group in Los Angeles. He held particularly to blame one banker, whom he sought out and shot to death in an open court room, July 14, 1930. He entered the plea of not guilty by reason of insanity, but was found sane.

While at San Quentin, awaiting execution, he developed mental symptoms strongly suggestive of hysteria or malingering, such as amnesia for the offense, mannerisms, catatonia-like attitudes and stupid answers. He was committed to Mendocino State Hospital, where, as he later stated, he made a sudden and complete recovery about two years later. However, at his own request, he was not returned to San Quentin until February 22, 1940. His discharge from the mental hospital was as recovered from "psychosis with psychopathic personality."

In view of the official adjudication of insanity in his case, and his 10-years' sojourn in the mental hospital, all concerned, including the Advisory Pardon Board, recommended favorable action on his application for commutation of his sentence, and in September 1940 the Governor granted commutation to life imprisonment.

CASE 22.—V. D., No. 64032. A 28-year-old Filipino. On April 19, 1939, he lost \$1.65 in a Chinese gambling joint in Sacramento, in which he had gambled previously with similar poor luck on several occasions. He later stated that he had been cheated, laughed at and insulted. He left the gambling place, returned with a gun, shot and killed the dealer at the table, ran out, held off with his gun a crowd of pursuers, but was soon arrested by the police.

He entered the pleas of not guilty and not guilty by reason of insanity. The jury was unable to reach a verdict on the insanity issue, was thereupon discharged, and a new jury found him sane.

While awaiting execution at San Quentin Prison, he was noted to have mental symptoms and, on the

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testimony of five physicians and psychiatrists, who made special examinations of him, he was adjudged insane and committed to Mendocino State Hospital.

The Advisory Pardon Board recommended commutation of sentence to life imprisonment. However, no action by the Governor was required under the circumstances.

CASE 23.—D. C. C., No. 64187. A white American, barely 20 years of age. At his birth his mother was 32 years of age. He was her first and only child. Two days before the labor pains set in there was a spontaneous rupture of the bag of waters, with an escape of over a quart of amniotic fluid. The labor was, therefore, a "dry" labor, necessitating instrumental delivery and resulting in extensive perineal tears. The mother was, of course, under anesthesia, knows nothing of any evidence of injury to the child at that time, and no obstetrical record is available. The boy began to show persistent disobedience, at least as far back as the age of 4 years, and at 7 years began systematic stealing of articles from a dime store, such as marbles, penknives, cheap jewelry and the like, habitually once or twice a week. At about the age of 12 years he progressed to burglarizing neighborhood grocery stores for candy and small amounts of money, and soon graduated to burglarizing private houses, usually entering in the rear, when a party was going on in the front of the house, and helping himself to purses left in the bedrooms. For many years hardly a week went by that he did not commit one or more delinquencies without being detected and without the knowledge of his parents. But at the age of 16 he was caught and committed to the Iowa State Training School at Eldora, where he seemed to get along very well, gaining his release at the end of 11 months. Soon thereafter, in California, he again began to burglarize homes.

Later he changed from burglaries to purse snatchings and, in order to avoid resistance and screaming, he would first club his victim over the head from behind to render her unconscious. The first time he used this technique his victim died within 24 hours, but this did not prevent his employing it subsequently, until the police finally arrested him and established his identity as the slayer of his first victim.

The recommendation of the Advisory Pardon Board was against commutation of sentence, and the boy was executed January 31, 1941.

CASE 24.—T. B. S., No. 64605. A 59-year-old white American who, on the morning of July 31, 1939, shot and killed his 32-year-old second wife, the mother of three of his children, aged 7, 5 and 3 years respectively. Shortly thereafter he attempted suicide by shooting himself in the abdomen, but was saved by prompt surgical intervention. Both the murder and the suicidal attempt were premeditated and elaborately planned; therefore, on his counsel's advice, he withdrew the plea of not guilty by reason of insanity, and was tried only on the not-guilty part of his originally dual plea.

He did not, by any means, represent a criminal

type, and had no prior police or court record. The principal etiologic factors in the case seemed to be as follows: an irascible, violent and otherwise emotionally unstable temperament; more or less habitual drinking which aggravated his irascibility; moderately severe acute alcoholism at the time of the murder and the suicidal attempt; marital troubles arising from cruelty toward his wife, including physical abuse, cursing, calling vile names, threatening and the like; worry over his own ill-health, financial difficulties and the future of his children. The precipitating factor seemed to be a divorce action started by his wife and, more particularly, a restraining order issued by the court enjoining him against seeing his wife, and tying up all his money and property.

There was a very definite history of recurrent psychotic episodes with fugues arising on the basis of his emotional instability and dating back at least five years; and there can be little doubt of the existence of a severe reactive depression at the time of the offense, although perhaps he was not legally insane.

The Advisory Pardon Board recommended against commutation of sentence in this case. The prisoner was executed April 18, 1941.

CASE 25.—E. B., No. 64156. A 34-year-old white American. A psychopathic habitual offender with at least two prior felony convictions. He was convicted of the murder of a druggist in Los Angeles in the course of a hold-up and attempted robbery at the store, March 23, 1939. Investigation by the State Division of Criminal Identification, at the request of the Advisory Pardon Board, showed that B.'s identification at the time of his trial was quite inconclusive, and that his alibi of being at Newhall, California, together with his two criminal partners, was more satisfactorily established. Accordingly, the Board recommended that the case be referred to the State Supreme Court (by reason of the prior convictions) with a view to securing authorization for granting the prisoner's application for the commutation of his sentence to life imprisonment. The authorization was obtained and the sentence was commuted, August 6, 1941.

CASES 26 and 27.—G. J. H., No. 65144, and M. S., No. 65145. These prisoners had been members of a gang of five criminals, one of whom, R. S., was murdered by the other four. One of the four, A. I., was acquitted on a plea of not guilty by reason of insanity, and thereupon committed to Mendocino State Hospital.

In the early part of 1940, this gang was involved in the murder and robbery of the proprietor of a barbecue stand. Thereafter, R. S., one of the gang, was "talking too much" to his girl about the affair; whereupon, the remaining four conspired to kill him, and did it on April 14, 1940, by first giving him whiskey drugged with chloral, and then dropping him from a bridge into the Sacramento River, where he drowned. They had put him in a bathing suit to make it appear that the drowning was accidental.

G. J. H. was born in 1918. He was his mother's first and only child, and she was 31 years old at the time of his birth. The birth was prolonged, difficult, and delivery finally instrumental; deep grooves, caused by the forceps, were present on both sides of the head, and have never entirely disappeared. He had a poor record at school, both in studies and in deportment. An intelligence test in 1932 revealed an I. Q. of 87. While still in his 'teens he developed a persistent delinquent tendency, specializing mainly in automobile thefts, for which he was arrested at least five times; but he estimated that he had stolen at least 35 automobiles. Between 1936 and 1939 he served two terms, of 16 and 14 months respectively, in Preston School of Industry. He stated that his connection with the gang had been strictly along the line of his specialty of automobile thefts. Whenever a car was needed, he would steal one, and then drive himself and others of the gang wherever necessary for the purpose of "a job." He said he had had "nothing to do with no murder."

M. S., was the ninth of 11 children; the others, as well as the parents, were reported to be respectable and free from any abnormality or serious maladjustment. Evidences of mental deficiency, of unascertained cause, were noted when M. was still an infant. At the age of 5 years his mental deficiency became complicated with marked behavior difficulty. A recent test revealed an I. Q. of 57. Since the age of 15 years he has been a fairly steady and heavy drinker. He started work at 18, first as a huckster, later in a steel plant, but was unemployed most of the time, devoting himself to loafing, gambling and drinking. At one time he enlisted in the Army, but deserted after about three months. Since childhood he has been subject to frequent arrests, was repeatedly before the juvenile, later adult courts for drunkenness, fighting, speeding, vagrancy and the like. At 22 years he was committed to the Federal Prison in Chillicothe, Ohio, for violation of the Mann Act, and served 20 months. For many years he was associated with delinquent and criminal gangs. On the day of the offense under consideration, he drank heavily and, before the murder of R. S. was fully accomplished, he had sunk into a stuporous alcoholic sleep, from which he did not awaken until the following morning, when for the first time he learned that "the job" had been completed.

The Advisory Pardon Board recommended against commutation of sentence in the cases of both G. J. H. and M. S. Both were executed November 28, 1941.

CASE 28.—W. D. K., No. 65629. A 57-year-old American-born Chinese, convicted of the murder of two Chinese, September 17, 1940. In 1903, at the age of 19, he became addicted to opium smoking—as was also the case at that time with at least one-third of the Chinese population in San Francisco. Despite this, he had always been a hard-working man, cook by occupation, was never on relief, and although as a rule poorly paid, managed to make a living; also, since the enactment

of the Harrison narcotic law, to purchase opiates from peddlers at increasingly exorbitant prices. There never has been the slightest evidence of criminal tendencies, other than the illicit use of opiates. In 1925-26 he served 14 months in Federal prison on McNeil's Island for possession of narcotics; and again, a term of about four years at Fort Leavenworth in 1935-39, for a similar offense.

Shortly after his last release he began to use narcotics again. He was, of course, in danger of being returned to prison for this violation of his parole; and some unscrupulous Chinese associates who knew the situation, abused that knowledge by forcing him to lend them money, and upon his asking for its repayment, beating him up and causing fractures of two ribs, robbing him, and then threatening to report him to the authorities for violation of parole, in the event of his making any complaint.

Under these conditions, following his discharge from the hospital, he took his hunting rifle, proceeded to where the Chinese customarily gathered, shot and killed two of them, wounded a third and threatened others. He did this openly and deliberately, and later gave his reasons for the crime, as stated above, expressing at no time any particular regret.

The recommendation of the Advisory Pardon Board was against the commutation of sentence. He was executed July 11, 1941.

CASE 29.—W. A. Y., No. 65410. A 26-year-old chronic delinquent. He had fallen in love with R. L., a 29-year-old Mexican woman, who had been twice married and had four children. Her refusal to marry him and her plea that they stop seeing each other, led him to brooding which culminated in his determination to kill her and himself. He stole a gun, bought cartridges, and wrote a letter to his mother, outlining his plan.

On June 10, 1940, he called on R. L. and tried to persuade her to marry him. Failing in that, he came over to her chair, sat in her lap, and fired two shots through her chest, causing her death. He then fired a shot at himself, which just missed being fatal. While trying to shoot himself a second time, he was overpowered and handed over to the police.

He had average intelligence, but a very abnormal temperament. Before the age of 10 years, trouble began on account of truancy, fighting and swearing at school, lack of interest in studies, failing in all subjects, lying, etc. This soon merged into definite delinquencies, mainly thefts. He was before the juvenile court on at least five occasions and was finally committed to Whittier State School in 1927. After two years he was released for placement, but his difficulties continued in progressively aggravated form. He was arrested on several occasions, served 6 months in jail for carrying a gun, and in 1935 he was sentenced to San Quentin Prison for second-degree burglary.

The Advisory Pardon Board recommended against commutation of sentence. However, on October 14, 1941, his sentence was commuted by Governor Olson to life imprisonment.

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CASE 30.—W. J., No. 65544. A 35-year-old sexual psychopath who, under sadistic impulses, and partly under the influence of liquor, murdered his wife in 1933, and two casually-met women in 1935 and 1940 respectively, and mutilated their bodies.

In childhood he gravitated toward the company of more or less delinquent boys; and at 13 was himself committed to the Essex County Training School in Massachusetts, where he remained about two years. At 17 he joined the army, where a duty sergeant, "who was a wolf," pursued him for sexual purposes as he was "young and pink-cheeked"; for this reason, according to his account, he deserted after about four months.

For many years he would experience, several times a year, a vague impulse to commit some violent act, especially on a woman. The danger of yielding to it seemed to him to be greatest when he was alone. Accordingly, he would seek immediately to place himself in the company of other men. He denied any homosexual leanings. His principal occupation has been that of sailor. He stated that when other sailors, on reaching port, would go in quest of women, he would join only drinking groups.

At 20 years he went to live with a young woman and, within three years, had two boys by her; finally married her, at the insistence of her parents. There was, however, constant maladjustment between them with repeated separations. One night in 1933, about midnight, he visited his wife. They had a quarrel, he choked her to death, and then mutilated her body by opening her abdomen to determine whether she was pregnant, as she had claimed.

He then shipped as a seaman and eventually, in the early part of 1935, arrived in San Francisco. On April 5, 1935, in the evening, he met Lena C. They engaged a room in a nearby hotel, sat around for about an hour, when he grabbed her by the throat, strangled her to death, and then mutilated her body by cutting off one of the breasts.

He then shipped out of San Francisco, but returned about five years later, and on June 24, 1940, met Irene C. in a beer hall. They had a number of drinks together and both were fairly intoxicated. He bought a bottle of whiskey and they went to a nearby hotel and engaged a room. The woman immediately undressed and went to bed. He did the same and found that she had "passed out." He tried to arouse her but she did not wake up. He grabbed her by the throat and choked her to death. He then mutilated her body by cutting out the vaginal tract, washed himself, and left the hotel.

He had not had sexual intercourse with any of his victims, although he stated that he had gone with them each time for that purpose.

The recommendation of the Advisory Pardon Board was against commutation of sentence. The prisoner was executed September 5, 1941.

III. FINDINGS AND RECOMMENDATIONS

In three cases (13, 14, 25) it appeared eventually that the men had been falsely

convicted. In one of these (25), by reason of a record of prior conviction, authority for granting commutation had first to be obtained from the Supreme Court. The men are now serving life terms.

It is worthy of note that in all three cases of false conviction the men had been well known to the police as chronic offenders with records of prior convictions. These men have claimed—as do many other prison inmates—that they had been deliberately framed. This is doubtful, although policemen unquestionably hold an attitude of suspicion and bias against individuals known to them as ex-convicts. In investigating unsolved crimes their attention is especially directed toward ex-convicts known to be at large in the district or near it.

In thirteen cases (3, 4, 9, 10, 11, 15, 17, 18, 23, 26, 27, 29, 30) the clinical histories contain evidence of many major crimes which have not been officially disposed of, having remained undetected and unrecorded. This evidence has been brought to light incidentally, and is probably incomplete. Special probing might have elicited a great deal of additional evidence of similar import.

It would appear, therefore, that our dealing with crime has been neither accurate nor adequate.

So-called habitual, professional, or psychopathic offenders are represented in our material by at least fourteen cases (3, 6, 13, 14, 15, 16, 17, 18, 23, 25, 26, 27, 29, 30). The crimes that are most characteristic of this group are theft, burglary and robbery. If they become involved in assault with a deadly weapon, or in murder, such involvement is usually incidental to the purpose of theft, burglary or robbery.

In contrast with the cases of habitual or professional offenders, is a group of essentially non-criminal personalities, represented in our material by twelve cases (1, 2, 5, 7, 8, 12, 19, 20, 21, 22, 24, 28). We are dealing here with desperate reactions to some rankling sense of grievance, injustice or outrage; no purpose whatever of theft, burglary or robbery is involved here. Of course, persons of emotionally unstable or paranoid temperament are, more than others, liable to react in this way to various provocations (8, 12, 19, 21, 22, 24, 28). Not infrequently alcohol, by its well-known effect of paralyzing in-

hibitions and thus causing impairment of control over reactions, appears as a factor (1, 7, 20, 24). In this group murders are often combined with a suicidal impulse or attempt, which, like the murder itself, is a manifestation of the emotional storm (5, 16, 19, 24, 29).

The dual plea of not guilty and not guilty by reason of insanity, provided in the California penal code, or the latter plea alone, was entered in twelve of the cases (3, 5, 7, 8, 11, 15, 16, 19, 20, 21, 22, 24). In one case (24) the insanity plea was withdrawn. In all the others the defendants were adjudged sane.

These adjudications may have been correct from the standpoint of current legal conceptions of "insanity." However, psychotic types of breakdown would seem to have existed in the five cases in which suicidal impulses or attempts had occurred (5, 16, 19, 24, 29); also in the two cases (21, 22) which subsequently had to be committed to Mendocino State Hospital. There was also a history of such a breakdown with treatment in a mental hospital in one other case (15).

It should be noted that, in two of the cases in which psychotic breakdowns probably existed, the defense, as already stated, withdrew the insanity plea in one (24), and never entered it in the other (29).

In at least one case (20) dissatisfaction was expressed by the jurors and others with the situation created by the separate trials on the pleas of not guilty and not guilty by reason of insanity, respectively. In that case the first trial resulted in a verdict of first-degree murder without recommendation. In their deliberations on the insanity plea, the jury had difficulty in arriving at a decision. They asked for further instructions from the court, saying, "If we had had, yesterday, the evidence that was presented today, there would have been an entirely different verdict." They were instructed, however, to limit themselves, on this occasion, to a consideration of the insanity issue.

The matter was later righted by the Governor granting a commutation of the sentence from death to life imprisonment. This defect in California law should be removed by appropriate legislative amendment.

In this series of cases of major crime,

alcohol is once more revealed as an important factor in causation. In no fewer than ten of our cases (1, 7, 9, 10, 16, 18, 20, 24, 27, 30) it seems to have played the part of an *essential cause*, i.e., a cause in the absence of which the crime, in all probability, would not have occurred.

A background of love frustration in some form was an essential feature of causation in five cases (1, 2, 12, 19, 29).

In two cases (7, 30) the crimes are in the nature of sex murders, on the basis of pædophilia in the one case, and sadism in the other.

Marital maladjustment was an outstanding feature of the causation in four cases (8, 11, 19, 24).

In at least three cases (4, 9, 10) the delinquent and criminal careers, which culminated in murder, are traceable to bad home conditions, bad social environment and unemployment.

In fifteen cases (1, 2, 5, 8, 9, 12, 13, 14, 18, 19, 20, 21, 22, 25, 29), including the cases of the three men considered to have been falsely convicted (13, 14, 25), the death sentences have been commuted to life imprisonment.

In the remaining fifteen cases (3, 4, 6, 7, 10, 11, 15, 16, 17, 23, 24, 26, 27, 28, 30) the applications for commutation of sentence were not granted, and the men were executed.

In a given case, the classification of the offender as of chronic or habitual type, or as essentially a non-criminal personality, has influenced greatly the prisoner's chance of being granted commutation of sentence. Leaving out of consideration the three cases of false conviction, commutation of sentence was granted in nine of twelve cases of non-criminal personalities; and in but two of eleven cases of defective or psychopathic delinquents.

In at least one-third of our cases the murder was but an incident in a career of delinquency and criminality. The individuals concerned would have been readily diagnosable, while still in their 'teens, as defective or psychopathic delinquents. In many such cases there is evidence of organic brain damage as underlying the behavior difficulty. Hence their generally intractable nature, chronic course and unfavorable prognosis.

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These patients—for they are patients—constitute the majority of recidivists in crime, who commit at least three-fourths of all major crime, according to the U. S. Census statistics. In the interests of crime prevention, as well as for their own benefit, they should be segregated in special institutions for medical and psychiatric care, for close supervision, and for secure custody.

As to the problem of alcoholism in its relation to both major and minor crime, it should be noted that prohibition has largely failed wherever it has been tried. In my opinion, based on many years of observation and experience, this problem is one not only of more or less habitual over-indulgence, but also of an imperfectly understood constitutional factor. One might almost say, the whole world drinks, but only a small percentage become true alcoholics. It has been said, "To become an alcoholic, one must be alcoholizable." It is perhaps this situation that accounts for the low percentage of permanent cures accomplished in such cases.

It was revealed in a recent study that, in the year 1937, in the city of Los Angeles, the costs involved in arresting, booking, transporting, housing and providing court hearings for alcoholics amounted to \$2,800,000. More than one-third of all the police-officers' time was spent in that service.

The State of California is now planning the establishment of two inebriate colonies, where these patients might be restored to good physical health, helped to straighten out their economic and domestic maladjustments, and, in pursuance of a liberal parole policy, be given repeated opportunities of attaining a readjustment in an extra-mural environment.

Whether we succeed or not in raising the percentage of lasting cures among the alcoholics, we shall at least have them off the streets, working and largely self-supporting, and no longer the principal preoccupation of the police and the municipal courts. A material reduction of the state's crime rate should result from the operation of such colonies.

In conclusion, a word as to capital punishment. It is not my purpose here to argue either for or against it. There is a good deal to be said on either side. Nowadays the proponents of capital punishment usually lay most stress on its deterrent effect. However, our crime statistics lend no support to any contention that there is such an effect. Thus, for example, according to the data furnished by the Bureau of the Census, the States of Maine and Rhode Island have no provision for capital punishment in their penal codes; and the State of Vermont, though having such provision, had no executions in the year 1939. During that year but three murders occurred in these States, *i. e.*, 1.2 per million of total population.

At the other extreme are the States of Texas, Virginia and North Carolina, where 31 executions were carried out in 1939. Nevertheless, in that year 478 murders were committed, *i. e.*, 50.2 per million of total population.

The figures for the remaining states, though hardly comparable to these examples, taken from the extreme ends of the statistical curve of distribution, show nevertheless a high degree of correlation between the extent of resort to the death penalty, on the one hand, and the murder rate, on the other—quite the opposite of a deterrent effect!

METHODS OF ESTIMATING CAPACITY FOR RECOVERY IN PATIENTS WITH MANIC-DEPRESSIVE AND SCHIZOPHRENIC PSYCHOSES¹

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The present report is concerned with the methods for determining potential capacity for recovery in manic-depressive and schizophrenic patients. In addition to the conventional historical and descriptive methods of psychiatry blood serum lipoids have been investigated as possible measures of capacity for recovery. The 142 patients included in this study have been followed for five or more years after the onset of their illnesses.

That high or low serum lipoids, cholesterol and fatty acids, might be indicative of a high or low capacity for recovery was suggested by the results of previous investigations in this department. It was observed that in normal people high serum lipoids were associated with such pyknic qualities as pyknic body build and high energy output(1). Conversely, low serum cholesterol and fatty acids were associated with the leptophilic qualities, leptosomic physique and low energy output. Furthermore, it was found that manic-depressive patients who possessed pyknic qualities usually had considerably higher lipoids than the schizophrenic patients(2). This common occurrence of high lipoids and pyknic body build in the manic-depressives who are known to have, among other pyknic characteristics, a strong capacity for recovery added to the evidence linking the level of serum lipoids with pyknic and leptophilic potentialities.

In the studies to be described pyknic body build, uncomplicated symptoms of manic-depressive psychosis, and high serum lipoids have been considered evidences of a strong potential capacity for recovery. Conversely leptosomic body build, textbook schizophrenic

symptoms exclusive of catatonic symptoms, and low serum lipoids have been considered indices of low capacity.

The fact that previous observers have tended to disagree on the level of lipoids in manic-depressives and schizophrenics has led to much confusion about this subject(3). The authors in previous articles(2), as well as other workers in the field of lipid metabolism, have pointed out that many of the discrepancies in the literature have been due to differences in methods and to the fact that some of the earlier colorimetric and nephelometric methods were subject to large errors. Furthermore, insufficient care was taken in establishing definite criteria for diagnosis and in selecting clear-cut representative cases.

Stenberg(4) was one of the first workers employing modern methods of lipid analysis to bring out the fact that calm, well-established schizophrenics had markedly low lipoids. He noted, however, that during an exacerbation in symptoms when there was marked excitement a rise in the lipoids would occur. During the years that have elapsed while we were waiting for the patients whose lipoids had been measured to prove their capacities for recovery a number of papers have appeared confirming Stenberg's observations that blood lipoids are low in schizophrenics, with the exception of the acute catatonic or excited cases. Randall and Cohen's work(5) confirming the above results is particularly important because they employed dependable chemical methods and their 85 schizophrenic patients had been ill for a sufficient period of time to establish a reliable diagnosis. Another worker, Brice(6), who has been careful in the selection of his material but has employed less dependable methods, has come to conclusions similar to those of the authors and to those of Randall and Cohen.

A recent study by Gudrun Brun(7) on lipoids in the serum in patients with manic-

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depressive psychoses has brought to question the findings stated above. However, an examination of this study, in which the case reports are fortunately given, reveals that the discrepancy between this author's results and those of Stenberg; Randall and Cohen; and Gildea, Man and Biach is due to the clinical aspects of the problem.

Of the manic-depressive patients Brun has eliminated at least one who had very high lipoids. The majority of the other patients had high lipid values. The exceptions were in the patients with many schizophrenic symptoms. Case No. 24 was a youngster with marked anxiety, apprehension, and in addition some catatonic symptoms. This patient was not well at discharge and from our point of view would be considered as a patient who would probably develop into a clear-cut schizophrenic. No. 25 was a youngster whose disease began at the age of 16. He was 19 at the time of the study and appears to have been in turmoil and to have shown many schizophrenic features. Patient No. 26 was apparently a sluggish individual, an imbecile in intelligence, with queer behavior and outbursts of unpredictable overactivity. Thus, one can scarcely consider this patient a classical example of manic-depressive psychosis. Patient No. 27 had had a severe head injury after which the symptoms developed. Again, there is some uncertainty as to the diagnosis. Still another case, No. 52, fits the description of an old schizophrenic. No. 56 was an alcoholic with hypochondriacal features, while No. 65 had few psychotic symptoms. Thus, when the cases with some schizophrenic symptoms are eliminated, the figures for lipoids resemble those reported for manic-depressives by Gildea, Man and Biach.

As there have been a number of detailed reviews of the literature on prognosis, reference will be made only to the recent particularly relevant articles(8, 9, 10, 11, 12). It is noteworthy that there is considerable disagreement among various psychiatrists with regard to the relative importance of the criteria for a favorable or unfavorable prognosis.

Blair(10) has presented perhaps the most detailed review of prognostic studies in schizophrenia in a large number of institutions, including clinics outside of state hospitals. He has summarized the results in detailed tables and drawn the following conclusions. The results of this investigation of the literature dealing with remission rates in schizophrenia indicate that an average of 40 per cent of cases admitted to mental hospitals, including clinics outside the state hospitals, recover or improve; whereas the other 60 per cent remain unimproved or deteriorate. In the first group the average

number of recoveries is about half, that is 20 per cent of all cases admitted. The percentage of recoveries varies considerably from one author to another. The rate is higher for the clinics outside the state hospitals, that is 26 per cent, than for the private mental hospitals and the state hospitals, which is approximately 18 per cent. Relapses occur in about 20 per cent of the cases discharged as recovered or improved, of which approximately half are permanent and half temporary.

Blair found that the outlook for his own group of 120 patients, followed for varying periods from 1 to 6 years after admission to the hospital, was very gloomy. Only 8 cases, 6 per cent, were much improved; and 11, or 9.1 per cent, improved. The outcome of individual cases corresponded to predictions derived from the prognostic facts. In only 2 instances was the outcome absolutely contrary to expectation.

According to Blair an unfavorable prognosis was indicated by the following findings: Age of onset in the thirties, persistence of psychosis for more than two years, a history of previous treatment for mental symptoms, positive hereditary tainting, asthenic or athletic body build, schizoid elements in prepsychotic personality, and insidious onset of symptoms with paranoid, hebephrenic or simple characteristics being equally ominous. In brief he found that the majority of his patients were thirty years of age or over; each had a psychotic period of over two years' duration, asthenic build, schizoid temperament, poor prepsychotic reaction, slow onset and was hebephrenic, paranoid or simple in type. In addition there were definite hereditary tainting and a previous history of mental treatment. Conversely, a comparatively low proportion of cases was young and had pyknic build, a cycloid temperament, a good prepsychotic reaction, and a rapid or acute onset. The latter picture constituted evidence for favorable prognosis, which was confirmed by subsequent outcome.

This report of Blair's with its somewhat dogmatic and pessimistic outlook should be compared with Rennie's study(8) of 100 recovered schizophrenics and with Strecker's description(13) of similar patients who have done well for many years. The present status of the historical and descriptive methods for evaluating capacity for recovery has

been well summed up by Rennie: "Many factors play a rôle in recovery some of which are largely unpredictable. It becomes imperative therefore to search for available assets in every case, as well as to evaluate the severity or the characteristic features of the psychosis itself (8)."

In the present study only those factors which most authors (12) have agreed on as being significant in predicting outcome have been investigated. These will be described in the section on clinical methods.

MATERIAL

The 142 patients included in this study differ in some respects from the usual hospital groups bearing these diagnostic labels. The 90 manic-depressive patients were selected in the first place as presenting relatively clear-cut and uncomplicated examples of the manic-depressive syndrome. Practically all had had a previous attack followed by a remission to an apparently normal degree of social activity. Consequently they might be expected to do better than a random sample. Among the 52 schizophrenics there was a high percentage of patients showing catatonic symptoms, including either stupor or stereotyped forms of excitement and bizarre behavior. A number of these patients could well have been classed with the manic depressives because of the attack-like illnesses followed by remissions and, also, because many of them at times displayed mood disorders resembling those of the manic-depressives. As one might expect,

many of these ultimately had apparently complete remissions. Finally, all patients with any signs of possible endocrine, organic, neurological or other organic disease were excluded from this series.

The patients have been divided into four groups according to psychosis and capacity for recovery. Capacity for recovery has been judged by the patient's condition five or more years following the beginning of illness. Patients who had regained their pre-psychotic level of social and economic adjustment were rated as having a high capacity for recovery. The patients who, after five or more years, were legally committed to a hospital or still required special care by relatives or agencies were rated as having a low capacity for recovery.

CLINICAL METHODS

All of the patients were under observation in the psychiatric clinic of the New Haven Hospital and were carefully and completely investigated according to the present-day conventional psychiatric and medical methods (14). The diagnoses were made by members of the senior staff independently of the authors. When an impasse on diagnosis was reached in the case of patients presenting symptoms of both schizophrenic and manic-depressive conditions, they were classified as schizophrenics.

The factors which were investigated as possibly being associated with a greater or less degree of capacity for recovery are summarized below.

Favorable	Unfavorable
<i>Hereditary factors in one or more near relatives or collaterals</i>	
Occurrence of manic-depressive psychosis	Occurrence of schizophrenic psychoses or markedly psychopathic people
Pyknic physique	Leptosomic physique
<i>Prepsychotic personality</i>	
High level of social development and accomplishment for age as estimated by school and occupational record, by course of sexual development, with a successful marriage in terms of both partners being considered as better than average	Low or mediocre level of these accomplishments
Outgoing personality	Seclusive
Lability in mood and marked reaction to good or bad news	Rigidity, Unwillingness or inability to modify behavior as required by changes in social and occupational setting
Warmth of temperament, measured by ability to make and keep close friends	Coolness
Strong appetite for food	Inability to make friends
	Weak appetite, frequent complaints of gastrointestinal discomfort

Nature of onset of illness

Acute onset
 Short duration
 Previous attacks
 Marked and apparently appropriate emotional display
 Onset after age of forty

Insidious onset
 Long duration of first attack

Lack of and/or inappropriate and/or bizarre emotional display
 Onset before the age of twenty

Special symptoms of psychoses²

Marked and appropriate elevation or depression in mood (affect)
 Self-accusatory reactions including recognition of personal internal source of symptoms
 Malnutrition and/or unexplained fever
 Acute febrile conditions and clouding of consciousness not due to discoverable organic disease
 Vasomotor disturbances
 Tachycardia
 Lack of or transient auditory and visual hallucinations
 Sleep disorders, particularly early morning awakening

Lack of or inappropriate emotional responses

Paranoid reactions. Illogical thinking

Well maintained somatic condition
 Disordered mental states in patients with unclouded consciousness with no evidence of somatic disorder

Auditory and visual hallucinations

Undisturbed sleep in association with marked disturbances in thinking and delusions and hallucinations

Serum lipoids determined during a period of exacerbation in the patient's illness

Cholesterol over 200 mgs. per cent.
 Fatty acids above 12 milli-equivalents

Below 200 mgs. per cent
 Below 12 milli-equivalents

Milli-equivalents of fatty acids can be converted to mgs. per cent by multiplying by 26.9. These values were derived from previous investigations in which it was found that most manic-depressives had serum lipoids above these figures while schizophrenics had low values(2).

The final evaluation of capacity for recovery necessarily has been determined by the course of the illness, nature of the remissions if any, and condition of each patient five or more years after the onset of the psychosis. In order to simplify the vexing problem of the nature and completeness of the remissions an arbitrary method of description has been employed. The patients classed as having high capacity for recovery were those who experienced complete remissions, *i.e.*, felt approximately as well as before the onset of their illnesses, and who were able to attain approximately their previous levels of social and occupational activities. The fact that a patient may have had one or more attacks during five or more years following first illness did not exclude him from this group. Patients with limited or low capacity for recovery were those who

five years after the onset of their illnesses were apparently permanently committed to mental hospitals or were only getting along outside by means of very special care and attention from relatives or community agencies.

The clinical and lipid studies were made on all of these patients during a period of observation of two or more weeks in the inpatient psychiatric clinic. Approximately one-third of the patients were readmitted a number of times or were followed in the outpatient clinic. For the information of subsequent course of the rest we are indebted to the detailed reports furnished by the state hospitals, the private hospitals, by physicians, and by letters and interviews with the families and the patients themselves.³

³ We wish to express our indebtedness particularly to Dr. R. L. Leak, Superintendent of the Connecticut State Hospital; Dr. C. D. Moore, Superintendent of the Fairfield State Hospital; Dr. W. A. Bryan, Superintendent, and Dr. Louis Cohen, Clinical Director of the Norwich State Hospital; Dr. H. M. Tiebout, Physician in Charge, Blythwood Sanitarium; Dr. C. P. Wagner, Physician in Charge of Elmcrest Manor; Dr. C. C. Burlingame, Physician in Chief of Neuro-Psychiatric Institute, Hartford Retreat; Dr. C. O. Cheney, Medical Director of Westchester Division of New York Hospital, White Plains; and Dr. G. W. Henry, Psychiatrist in Charge of Brook Lea Farm, New York.

² All patients with persistent forms of catatonic stupors or stereotyped excitement have been classed as schizophrenics. In this connection these symptoms were considered favorable.

The samples of blood were taken when the patients were suffering a severe exacerbation of symptoms and were analyzed by methods which have been previously described(15, 16, 17, 18). Where severe malnutrition was present subsequent samples were taken after the patient had been adequately fed and fluid balance restored for three days or more but had not necessarily recovered much of previous weight loss.

Previous studies have shown that many common disturbances in patients may be associated with low or high levels of the lipoids and proteins in the blood. Particularly relevant to the present study are the following observations: (1) Severe malnutrition which lowers the serum proteins and lipoids(19) is frequently present; (2) closely related to nutrition is fluid intake, which, if inadequate, results in hemoconcentration and an apparent rise in the lipoids and proteins of the serum(19). As changes in weight are common in these mental disorders, the weights of the patients were recorded. The patients were given optimal diets, including 2 to 3 liters of fluid daily, and tube feedings were resorted to if necessary. As underactivity of the thyroid increases the lipoids and overactivity reduces them, all patients with thyroid disorders have been excluded(20, 21). Disorders in function of the liver and kidneys also may affect lipid metabolism. Consequently, much attention was devoted to excluding patients with these diseases.

Because of the observations on the relation of disorders of the brain stem to a high lipid content of the serum(22), particular attention was devoted to the presence and severity of vasomotor instability, tremor, masklike facial expression and other features suggestive of involvement of the brain stem. Like workers in other institutions, we found extreme difficulty in making any quantitative estimate of the degree of vasomotor instability, disturbance in mood or tremor. For this reason only marked qualitative differences have been recorded.

METHODS

All samples of blood were taken from an arm vein when the patient was in the post-absorptive state. Serum from these samples

was analyzed in duplicate for total fatty acids and cholesterol by methods previously described(15, 16, 17, 18). It should be noted that the titrated fatty acids are now considered to contain all the phosphatide fatty acids. The errors involved in the chemical determinations were negligible as compared with the normal daily variations. In the 100 consecutive duplicate determinations of serum cholesterol, it was found that the correlation between one duplicate and the other was 0.978, or that one could be estimated from the other within a probable error of plus-minus 10.84 mg. per hundred cubic centimeters of serum. The correlation between duplicate determinations of fatty acids was 0.987, and the probable error of estimate, plus-minus 0.49 milli-equivalents.

DATA

The 142 patients have been divided into four groups according to criteria described under clinical methods:

Group I: 30 schizophrenic patients with low capacity for recovery as judged by the development of no or incomplete remissions five or more years after onset of illness.

Group II: 22 schizophrenic patients with high capacity for recovery, *i.e.*, those with complete remissions five or more years after onset of symptoms.

Group III: 74 manic-depressive patients with high capacity for recovery as judged by the completeness of remissions five or more years after onset of symptoms.

Group IV: 16 manic-depressives with low capacity for recovery as judged by incomplete remissions five or more years after onset of symptoms.

The data on heredity and special features in prepsychotic personality and patient's status which appeared to offer some indication of capacity for recovery have been summarized in terms of per cent of each group in Table I. Indifferent factors, such as mixed or average types of physique, average mixtures of outgoing and seclusive qualities, etc., have been omitted.

The ages of onset of the four groups of patients have been summarized by decades in Table II.

The data on the blood serum lipoids have been presented in Figs. 1 and 2. The fol-

TABLE I

HEREDITY, PREPSYCHOTIC PERSONALITY, PHYSIQUE, AND MENTAL STATUS AS INDICES OF CAPACITY FOR RECOVERY IN PATIENTS WITH MANIC-DEPRESSIVE AND SCHIZOPHRENIC PSYCHOSES

	Favorable or unfavorable factors	Heredity		Prepsychotic personality			Physique of patients	Special features in mental status		
		Physique	Psychopathy	Seclusive, outgoing	Lability	Eating habits		Mood	Behavior	Content
		Expressed as per cent of each group*								
Group I 30 schizophrenics with low capacity for recovery	F	17 P	10 MD	0 Og	20 L	0	10 P	57 Ed	33 Cat	3 Sa
	U	23 L	43 p, S	90 Sec	30 R	47 -	43 L	37 Ap 57 In		80 Pa
Group II 22 schizophrenics with high capacity for recovery	F	50 P	36 MD	45 Og	77 L	41 +	23 P	86 Ed	64 Cat	27 Sa
	U	18 L	14 S	36 Sec	4 R	23 -	36 L	9 Ap 27 In		86 Pa
Group III 74 manic depressives with high capacity for recovery	F	73 P	39 MD	88 Og	88 L	89 +	59 P	Mental status, similar in groups III and IV, presented no symptoms characteristic of schizophrenia.		
	U	8 L	15 p, S	8 Sec	0	11 -	16 L			
Group IV 16 manic depressives with low capacity for recovery	F	75 P	62 MD	75 Og	94 L	94 +	44 P			
	U	25 L	31 p, S	19 Sec	0	6 -	12 L			

*Per cent of indifferent factors omitted.

KEY TO SYMBOLS IN TABLE I

Nature of factors

F—Favorable factors; that is, those factors which may possibly indicate a high capacity for recovery.
U—Unfavorable factors.

Physique

P—Pyknic physique as defined by Kretschmer. Obese and dysplastic forms of build have been excluded from this group and considered with the mixed or intermediate kinds of physique to be of indifferent value as indices of capacity for recovery.
L—Leptosomic physique as defined by Kretschmer.

The symbols under heredity refer to descriptions of parents, grandparents, and collaterals, and were applied only when descriptions seem convincing.

Psychopathy

MD—Manic-depressive psychoses.

S—Schizophrenia.

p—Markedly psychopathic relatives, including severe hypochondriasis, criminals, ne'er-do-wells and alcoholics.

Prepsychotic personality

Og—Outgoing. This term has been applied to people described as primarily social in nature, having capacity to make and hold friends.

Sec—Seclusive. Refers to people described as finding it difficult to make and hold friends and preferring their inner personal life to social activities.

Apparently equal amounts of outgoing and seclusive qualities in antecedents were considered as indifferent factors and not included in table.

L—Lability in mood and strong reaction to good and bad news.

R—Rigidity, i.e., unwillingness or inability to modify behavior as required by changes in social and occupational setting.

Eating habits: + refers to patients with notably large appetite and interest in food; - indicates small appetite and finickiness about food.

Mood

Ed—Considerable emotional display described as apprehension, fear, and irritability.

In—Inappropriate mood as compared with behavior and content of thought.

Ap—Apathy. Deficiency in emotional responses.

Behavior

Cat—Catatonic, including either excitement or stupor. This term has been used in the broadest sense and includes the conventional stupors as well as various forms of stereotyped and repetitive behavior.

Content

Sa—Self-accusatory. Denotes patients who recognized the internal personal nature of their illness or who felt they themselves were at fault.

Pa—Paranoid. Refers to symptoms of alien control, ideas of reference, suspiciousness, as well as persecutory delusions.

lowing legends for the four groups have been employed:

Group I, ■: 30 schizophrenics with no remissions represent the patients with the lowest capacity for recovery.

Group II, ☒: 22 schizophrenics with remissions represent the patients with a high but uncertain capacity for recovery.

Group III, □: 74 manic-depressives with complete remissions represent the patients with the highest capacity for recovery.

Group IV, ▨: 16 manic-depressives with incomplete remissions, although different in the quality of remissions, probably belong with group II in terms of their capacity for recovery.

TABLE II

DISTRIBUTION BY DECADES OF THE AGES OF ONSET IN THE FOUR GROUPS OF PATIENTS

Groups	Per cent of patients by decades			
	10-20	20-30	30-40	40-50
Group I 30 schizophrenics with low capacity for recovery	27	50	20	3
Group II 22 schizophrenics with high capacity for recovery	14	59	27	0
Group III 74 manic-depressives with high capacity for recovery	12	42	27	19
Group IV 16 manic-depressives with low capacity for recovery	37.5	37.5	19	6

RESULTS

Table I reveals that when manic-depressive patients were carefully selected by excluding all those with some schizophrenic symptoms, the group had a high capacity for recovery. In fact 81 per cent had experienced complete remissions and were doing well five or more years after the onset of their illnesses. It is also noteworthy that all but 2 of the 16 patients in group IV with incomplete remissions were incapacitated by the frequency and length of attacks rather than by any change in symptoms involving dilapidation and disintegration of personality.

In the case of the schizophrenics (Table I), emotional display was only a little more common in the group II patients with high capacity for recovery than in group I and,

therefore, was of modest prognostic significance. On the other hand, the unfavorable factors, apathy and inappropriate affect, were sufficiently common in group I as contrasted with group II to be of prognostic value.

The relatively large number of catatonic patients included among the schizophrenics probably explains their relatively high re-

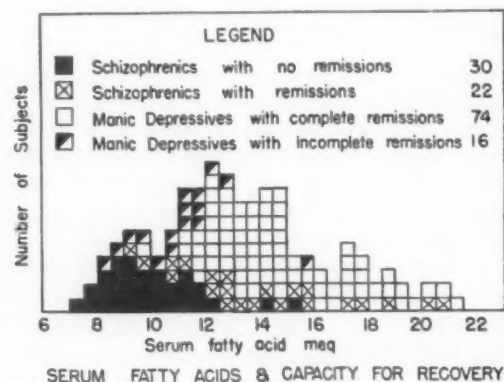


FIG. 1.

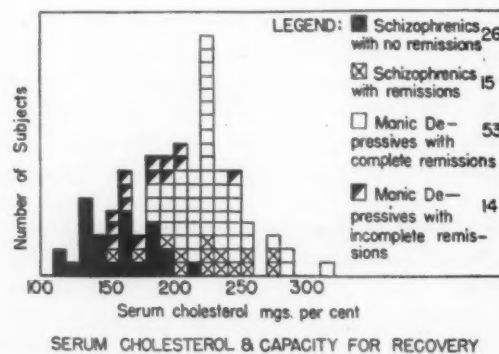


FIG. 2.

mission rate of 39 per cent, as contrasted with rates commonly reported. Catatonic symptoms, however, were not a very reliable index of capacity because they made up 33 per cent of the patients in group I who experienced no remissions. It should be noted that the catatonics, groups I and II, had a remission rate of 59 per cent whereas the rate was only 26 per cent for the non-catatonic schizophrenics. Self-accusatory trends when predominant features were clearly of considerable prognostic significance.

The unfavorable symptoms of apathy and

inappropriate mood correlated quite well with unfavorable outcome while, in contrast, paranoid symptoms were equally divided between groups I and II.

Pyknic physique of patients occurred in 59 per cent of the manic-depressives, groups III and IV, and in only 17 per cent of the schizophrenics, groups I and II. There were also significantly more pyknics in the subgroups II and III, thus demonstrating a close relation between capacity for recovery and pyknic physique. The exceptions, 10 per cent of group I, and the relatively large number of patients of mixed or dysplastic physiques, indifferent factors, limit the value of the criterion in prognosis. Leptosomic physique was definitely associated with schizophrenia and low capacity for recovery, but again, as in the case of the pyknics and favorable outcome, the moderately frequent exceptions, 16 per cent of group III, should not be overlooked.

The remarkable feature of the observations on prepsychotic personality was the high incidence of outgoing characteristics in the manic-depressive groups III and IV, as contrasted with the lack of this quality and the presence of seclusiveness in group I. It would therefore appear that outgoing and seclusive personality qualities are related to the amount of capacity for recovery. Large appetite and good digestion and lability in mood were closely correlated with manic-depressive symptoms and high capacity for recovery. It is interesting that no patients of the group I schizophrenics were described as having large appetites, whereas in group II a vigorous appetite was reported in 9 people.

The data on heredity, although necessarily incomplete, show that the occurrence of manic-depressive relatives or antecedents increases the probability that a schizophrenic patient will recover. The report of schizophrenic and psychopathic kin tends to diminish the probabilities of recovery. In groups III and IV the high incidence of a history of manic-depressive heredity, 43 per cent, should also be noted.

The level of social development proved difficult to describe in tabular form but appeared to be significant in estimating capacity for recovery. A relatively high level of social development was attained by most of

the manic-depressive patients. The exceptions were more frequent in the patients who made incomplete recoveries. There were fewer schizophrenic patients with high levels of social development than among the manic-depressives, but again the superior grades of achievement occurred in the patients with high capacity for recovery.

Coolness of temperament was noted more frequently in the schizophrenics than in the manic-depressives but otherwise was not regularly associated with capacity for recovery.

Acuteness of onset and short duration of first attack were definitely more common in the manic-depressives and groups with high capacity for recovery than in those with low capacity for recovery. There were enough striking exceptions, however, to limit the value of these criteria.

Hallucinations were rare and usually transient in the manic-depressives and present and persistent in all but 10 of the schizophrenics. There was no difference between the two groups (I and II) of schizophrenics in this respect.

Somatic symptoms of unknown etiology, such as fever, leucocytosis, tachycardia, tended to be present in the severely psychotic patients in all four groups and, therefore, were not of value in prognosis.

Sleep disorders were common in all groups, and no particular pattern seemed characteristic of one group.

Table II brings out strikingly that the onset of illness before 20 is ominous for manic-depressive patients and only moderately so for the schizophrenics.

Figs. 1 and 2 indicate that there is a definite relation between the amount of the serum lipoids, cholesterol and fatty acids, during the psychosis and subsequent capacity for recovery. In all but 2 of the group I schizophrenics the fatty acids are below the normal average of 12.6 meq., and in all but 7 the cholesterol is below 200 mg. per cent. It is noteworthy that the manic-depressives, group IV, who were unable to recover tend to have low lipoids although not as low as in the schizophrenics in group I. In the manic-depressive group some overlapping occurs. Furthermore, the distribution of the data plotted in these figures tends to form a normal curve. Consequently, a

considerable proportion of values fall close to the average, thus diminishing the significance of these measurements in single cases except where extremely high or low figures may be found.

COMMENT

It has been found that exclusion of all patients with schizophrenic-like symptoms, as determined by history and mental status, from a series of patients with manic-depressive and schizophrenic symptoms will yield a group of patients with a high capacity for recovery. This was demonstrated by the fact that 81 per cent of this select group (III and IV in Table I) had apparently complete social remissions five or more years after the onset of their illnesses. Conversely, elimination of all patients with catatonic symptoms, including queer states of excitement, from the series of patients with schizophrenic symptoms yielded a group with a low capacity for recovery. In fact 74 per cent were showing no signs of recovery after five or more years. In contrast success in prediction of capacity for recovery in the patients with varying symptoms, including features of both syndromes and catatonic symptoms, yielded results only moderately better than expectations on the basis of chance.

These results support the observations of many previous psychiatrists who found that remission rates varied with the point of view of the psychiatrist and with type of institution(10). The patients with considerable capacity for recovery rarely enter the state hospitals, and as a result physicians in these institutions acquire the impression that patients with mood disorders have nearly as poor prognosis as the schizophrenics. Conversely, physicians in psychiatric clinics attached to general hospitals and in many private institutions see a disproportionately large number of patients with a high capacity for recovery and, therefore, acquire an unduly optimistic attitude with regard to methods of evaluating prognosis.

The results of the present study indicate that success in prognosis can be improved statistically by taking into consideration the nature of psychoses in the heredity of the patients in addition to the nature of their

prepsychotic personalities. These observations support in part those of Kraepelin(23) and Kahn(24), presented in the early literature, and, more recently those of Rennie(8) and Strecker(13), to name but a few workers on these problems.

However, it is clear that even when all recognized historical and clinical factors have been taken into account, dependable prognoses cannot be made in a considerable number of patients.

The results of the lipid studies (Figs. 1 and 2) indicate that high cholesterol and fatty acids are in some way associated with a high capacity for recovery while low levels of lipoids carry a converse implication. The utility of lipid measurements as indices of prognosis is limited, however, by the fact that many patients tend to have average values which are of uncertain significance. For the present, however, it can be concluded that patients with fatty acids under 11 meq. and cholesterols under 180 mgs. per cent have an extremely poor chance for recovery and that patients with values above 12.5 meq. and 210 mgs. per cent have favorable prospects for recovery.

In estimating capacity for recovery in a particular patient search should be made for pyknic factors. Patients with many such factors can be expected to have a high capacity for recovery. For example a patient with many antecedents with pyknic physiques, who were also energetic, labile, outgoing people with vigorous appetites; whose prepsychotic personality and physique conformed to the family pattern; and whose psychosis was a simple depression or mania almost certainly would have high blood lipoids. Furthermore, such a patient would experience a complete remission, and his life course would reveal a high capacity for recuperation and for work. Conversely, leptophilic qualities in antecedents and in the patient himself indicate a low capacity for recovery. Patients with mixtures of these favorable and unfavorable qualities would have varying capacities for recovery depending on what elements predominated.

In the present series of patients the finding of high lipoids in 4 schizophrenics, who apparently lacked other factors considered favorable in prognosis, proved the only clue

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to subsequent complete remissions. Low lipoids also corresponded to a subsequently demonstrated poor capacity for recovery in patients in whom favorable factors predominated.

While only 4 striking exceptions to the rule, associating high lipoids with capacity for recovery, occurred in the present study, it must be stressed that all patients with complicating conditions which might affect the lipoids were excluded. It is probable that a large series of patients and a longer follow-up period might bring to light additional exceptions.

SUMMARY

Methods of evaluating capacity for recovery, including conventional psychiatric procedures and determination of serum lipoids, have been investigated in 142 patients with manic-depressive and schizophrenic psychoses.

The conventional clinical psychiatric methods yielded relatively dependable results in patients presenting clear-cut symptoms of manic-depressive psychosis provided all patients with catatonic symptoms and other schizophrenic symptoms were excluded. Eighty-one per cent of 90 patients so selected were doing well five to ten years after the onset of their illnesses.

In the case of the schizophrenics the results were little better than chance when patients with catatonic symptoms were included. This was also true of the patients presenting mixtures of symptoms of both syndromes.

Exclusion of patients with catatonic symptoms and queer states of excitement, however, yielded a group of schizophrenics in which 74 per cent were showing no signs of capacity for recovery five or more years after the onset of their illnesses.

The serum lipoids, fatty acids and cholesterol, were found to be associated in some way with subsequent capacity for recovery. High lipoids occurred in most patients who subsequently recovered, while low lipoids were found in those who did not.

Serum lipid determinations, therefore, when considered in conjunction with other historical and clinical data offer a promising supplement to methods of estimating the

capacity for recovery of patients with schizophrenic and manic-depressive symptoms.

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CLINICAL AND BIOLOGICAL INTERRELATIONS BETWEEN SCHIZOPHRENIA AND EPILEPSY¹

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The simultaneous occurrence of schizophrenia and epilepsy in a patient is a controversial problem. Recently, investigations of this question received a new impetus in connection with the convulsive shock treatments and the electroencephalographic findings.

The literature is rich in reported case material but only a few attempts were made to investigate this question thoroughly. Most of the reports made concern themselves with the occurrence of epileptic fits in schizophrenic patients and less attention has been paid to schizophrenic psychotic pictures in epileptic patients, although it has been noted frequently that they occur. Kraepelin(1) found many cases of epilepsy among schizophrenics, but his diagnosis of epilepsy was rather broad and included all kinds of fainting spells, vertigo and other manifestations which may be epileptic in origin but in most instances were vasomotor manifestations or the so-called syncopal attacks of Wernicke(2) appearing in catatonic patients. Bumke(3) found that epileptic fits are rather rare in schizophrenics. Mueller(4) in a chronic case material, found, however, a number of cases. Bleuler(5) made similar observations. Strauss(6) collected among 6,000 schizophrenics, 20 patients with epileptic fits. Vorkastner(7) found 2 among 217 cases in which the diagnosis of epilepsy stood up under close scrutiny. Glaus(8) assumed that the combination of epilepsy and schizophrenia, although rare, is indisputable. Fisher(9) described a few cases, which he explained as due to a combination of hereditary factors, believing that in these patients a mixture of two psychotic processes was present, as described by Hoffman and Kahn in schizophrenia and manic-depressive psychosis.

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Krapf(10) surveyed all of the literature on this problem up to 1928, and in addition reviewed the cases of the clinic in Munich. There were 1,506 cases of schizophrenia. The result of his investigations is negative, and he arrived at the conclusion that a genetic and clinical relationship between epilepsy and schizophrenia is not established. He admits, together with Ganter, that in some acute cases of epilepsy the clinical picture appears to be very similar to schizophrenia, but this is the only concession he makes concerning the relationship between the two disorders. He admits that isolated epileptic attacks occur in cases of schizophrenia, and he attributes this to a swelling of the brain which produces the fits. This type of epileptic attack is mainly observed in cases of catatonia, and he points out quite correctly that they follow mainly a catatonic excitement, and that the epileptic fits remain sporadic.

Esser(11) who studied a rather large material, found more cases of epilepsy among schizophrenics and assumed that the difference of opinion between himself and Krapf was due to the fact that the latter studied acute clinical material while his own cases were of the chronic type. Esser assumes that no biological antagonism exists between schizophrenia and epilepsy. He finds rather an affinity between these disorders, and points especially to the paranoid-hallucinatory conditions in both which are very similar. In his cases the epileptic condition occurred only after the patient suffered many years from a schizophrenic psychosis, although in most instances the epileptic attacks remained sporadic, and appeared after a marked catatonic excitement. He admits that most probably in some of the chronic cases the epilepsy is due to arteriosclerosis or an involutional process. In other words, they are not clear-cut combinations of genuine epilepsy with schizophrenia. Krapf assumes that in these cases in which both disorders are present, the schizophrenic

heredity influences the clinical picture, even though not always demonstrable.

Meduna(12, 13), Nyiro and Jablonsky assumed a biological antagonism between epilepsy and schizophrenia, and Meduna introduced the metrazol treatment for schizophrenia because he believed that the two disorders are antagonistic to each other.

In our own investigation we reviewed the records of 500 schizophrenic patients in the Manhattan State Hospital. The cases were unselected, but they were mainly chronic patients. We found only 2 cases with a history of convulsions. In one patient the epileptic manifestations occurred after a head injury, and it is safe to assume that his epileptic attacks are of a symptomatic nature. In the other case the attacks were not epileptic in nature, but they were pseudosync-

excitement, refusal of food, or intercurrent physical disease. These latter cases cannot really be judged as true cases of epilepsy, but only as cases showing some symptomatic epileptic attacks because of a temporary toxic or emotional condition. Another point of disagreement is that attacks of excitement with some narrowing of consciousness are classified by some authors as epileptic equivalents. It is true that such attacks do not infrequently occur in schizophrenia, especially in the catatonic type, and one may also admit that they clinically resemble psychomotor epilepsy. It is unlikely, however that there is any more connection between these two disease groups than a clinical resemblance.

To clarify this clinical problem more definitely, it is essential to rule out a genetic relationship between schizophrenia and epi-

TABLE I

INCIDENCE OF EPILEPSY AND SCHIZOPHRENIA IN EPILEPTIC AND SCHIZOPHRENIC SIBSHIP GROUPS

Expectation of morbidity	General population	Consanguinity of epileptics			Consanguinity of schizophrenics		
		Siblings	Dizygotic co-twins	Monozygotic co-twins	Siblings	Dizygotic co-twins	Monozygotic co-twins
Epilepsy	0.2-0.5	3.1	3.1-4.0	66.6-86.3	0.32-0.42	0.45	0/156
Schizophrenia	0.85	1.2	0/15	0/5	11.5	12.5	81.7

pal attacks in a catatonic. The electroencephalogram in this case was negative.

We also reviewed the records of 100 epileptic patients, and found 10 where the symptomatology resembled schizophrenia. In 3 of these cases it was clinically impossible to differentiate the epileptic psychosis from schizophrenia. In the other 7 patients, in addition to the schizophrenic syndrome, there were other symptoms which clearly indicated some form of organic psychosis, even though they were not always characteristic of epilepsy. Our observations are, therefore, negative for the occurrence of the combination of epilepsy and schizophrenia. We would like to point out that if we discard in the literature the cases reported as having only sporadic attacks, the number of patients suffering from epilepsy and schizophrenia combined is not very large, although they apparently do occur. Confusion mainly exists because of the lack of differentiation between a true epileptic disorder and sporadic epileptic attacks in schizophrenic patients, which occur only in connection with

epilepsy. It is well known that many recent studies have supported the theory that hereditary factors play an important rôle in the origin of both disorders. Of course, there are still numerous authors who disclaim any influence of heredity in either disease group, especially in epilepsy. We believe, however, that the evidence in favor of a genetically determined predisposition is sufficient in both disorders.

Table I gives a brief summary of the statistical data which have a bearing on the problem of a genetic relationship between schizophrenia and epilepsy. Most of the epilepsy figures are those of Conrad(14) whose extensive research in the problems of epileptic twins has not been duplicated. The data on the frequency of schizophrenia and epilepsy in the kinships and twin partners of schizophrenics have been kindly made available to us by Dr. Kallmann whose work concerning the inheritance of schizophrenia needs no particular emphasis.

The general average frequency of epilepsy may be assumed to be somewhere be-

tween 0.2 and 0.5 per cent. We selected the lowest and the highest estimates, since the results of different studies have varied considerably, probably because of different diagnostic criteria used. As to schizophrenia there is agreement on a general average incidence of about 0.85 per cent. We see, therefore, that both disorders are sufficiently common to justify the requirement of the following two suppositions for the assumption of a genetic relationship between the two disease groups:

(1) There should be an increase in the frequency of epilepsy in the blood relationship of schizophrenics, and this increase should be proportional to the degree of consanguinity.

(2) There should be a similar increase in the frequency of schizophrenia among the blood relatives of epileptics.

In looking at the actual statistics we see immediately, however, that neither condition is fulfilled. While the frequency of epilepsy in the siblings and dizygotic co-twins of epileptics ranges from 3 to 4 per cent and thus is about ten times greater than in the general population, the sibship and twin figures for schizophrenia in the consanguinity of epileptics have been found to be close to normal. This distribution is similar to that obtained in schizophrenia. There is no evidence of an increase of epilepsy in the siblings and co-twins of schizophrenics, while the siblings and dizygotic co-twins of schizophrenic patients show morbidity rates which exceed the general average expectation about 14 times. This difference becomes still more obvious if the respective morbidity rates for monozygotic twins are considered. According to Conrad, the concordance figure for epileptic one-egg twin pairs amounts to 66.6 per cent if all cases of epilepsy are included, and shows a further increase to 86.3 per cent if symptomatic cases of epilepsy are omitted. Kallmann's (15) corresponding figure for the frequency of schizophrenia in the co-twins of schizophrenics is 81.7 per cent, while there has been no case of epilepsy in the monozygotic twin partners of schizophrenic patients, and no case of schizophrenia in the monozygotic co-twins of epileptic patients.

We may conclude, therefore, that epilepsy and schizophrenia are two disorders which

genetically are not related. This fact would not exclude the possibility, of course, that some persons may inherit the predispositions to both disorders. It does imply however, that in the majority of cases showing an association of epileptic and schizophrenic symptoms we may deal either with symptomatic epilepsy in schizophrenics, or—what is probably more common—with a symptomatic schizophrenic syndrome in epileptics.

With the advent of electroencephalography, new concepts were introduced concerning the relationship of schizophrenia and epilepsy. In epilepsy EEG changes were observed which were adjudged characteristic of the epileptic disorder. Later similar cortico-electrical changes were found in relatives of epileptics, establishing the fact that an hereditary disposition to cerebral dysrhythmia is underlying the epileptic manifestations. Today only the wave and spike pattern is accepted as truly characteristic for epilepsy (for the petit mal form), the high amplitude spike discharges indicating a grand mal attack. The other EEG findings in epilepsy, *i.e.*, dysrhythmias observed in the so-called psychomotor epilepsies, are suggestive of the presence of an epileptic condition, but they are not absolutely conclusive.

In schizophrenia, the EEG findings are more inconsistent. Berger (16) found no abnormalities in schizophrenia. Travis and Malamud (17), McMahon and Walter (18) made similar observations. Jasper at first found no abnormalities in schizophrenics. Later, however, he reported dysrhythmias in a number of cases. Lemere (19) found "poor alpha activity" in schizophrenic patients. P. Davis and H. Davis (20) observed more seizure discharges in schizophrenias than in normals, and believed that this has something to do with the high incidence of epileptiform manifestations in the catatonic group. Gibbs, Gibbs and Lennox (21, 22) went so far as to state that the main manifestations of epilepsy (grand mal, petit mal, and psychomotor) are each accompanied by a distinct pattern of dysrhythmia. The EEG record obtained in patients having psychomotor seizures is similar to that seen in most patients diagnosed as having schizophrenia. These records are, furthermore, closely similar to those obtained in the

majority of children with psychopathic personalities. These authors believe that schizophrenia, like epilepsy, can be spoken as a form of cerebral dysrhythmia, and believe that the relationship between epilepsy and schizophrenia is a positive one, the clinical boundary line which delimits these different disorders being artificial and of secondary importance compared with the classification based on physiological pathology. We would like to call attention to the observation of Gibbs, Gibbs and Lennox that they had not encountered the petit mal wave form in any of their schizophrenic patients, and saw grand mal activity only very rarely. Most of the dysrhythmias occurring in both disorders were confined to the psychomotor type of pattern.

Jasper, Fitzpatrick and Solomon(23) found that no general antagonism exists between epileptic and schizophrenic conditions. They found both disorders clinically associated, and a significant number of their schizophrenic patients showed EEG evidence of brain activity similar to that seen in epilepsy. Twenty three per cent of their patients diagnosed as schizophrenics showed either clinical or EEG evidence of epileptiform disturbances. Fifteen per cent of the schizophrenic patients suffered from mental disorders due to head injury, mental deficiency, or other organic defects of the brain. They concluded that many of their schizophrenic patients gave records which overlapped considerably those found in normal individuals. Some were in the direction of activity seen in epileptics, while others were in the opposite direction from epilepsy. They expressed the opinion, "that the clinical entity schizophrenia is a highly individualized reaction to a number of different kinds of cerebral activity."

Davis(24) classified the schizophrenic records in three groups: (1) The essentially normal findings; (2) the dysrhythmic types which were indistinguishable from the EEG of epilepsy of the psychomotor type; and (3) types which suggested gross organic diseases of the brain.

In connection with EEG studies in organic psychosis, we examined last year 60 schizophrenic patients to compare their records with parietic, alcoholic, senile and arterio-

sclerotic cases (Hoch and Kubis(25)). Slow alpha waves (2-5 per second) have not been found in acute or chronic cases of schizophrenia. Discharges similar to those observed in psychomotor epilepsy were seen in all of the above mentioned organic conditions just as in many schizophrenics. Since that time we have examined about 60 more schizophrenic patients and scores of patients suffering from organic psychosis and epileptic disorders. In about 3 per cent of our schizophrenics we found waves falling in Davis' third group, suggesting gross pathological lesions of the brain. In 35 per cent of our schizophrenic patients we found irregularities, many of them resembling those seen in psychomotor epilepsy. In conformity with the findings of Gibbs, Gibbs and Lennox, Davis, Jasper and others, we did not observe wave patterns suggestive of petit mal manifestations, and only once electrical discharges suggestive of grand mal epilepsy.

In our opinion, the electroencephalographic evidence offered as to the relationship of schizophrenia and epilepsy has not been conclusive. The majority of schizophrenic patients show normal records, a fact which does not hold true for patients suffering from epilepsy. In the relatives of epileptic patients, dysrhythmias have been observed which are similar to those observed in persons with clinically manifest epilepsy. In the relatives of schizophrenics, abnormal wave patterns are not reported in excess of those observed in the normal population. We tested about 10 relatives of schizophrenic patients, a very small number to be sure, but no abnormal wave patterns were found. Gibbs, Lennox, Davis and Jasper believe that there is a relationship because the wave patterns observed in psychomotor epilepsy are indistinguishable from those seen in many schizophrenic patients. It may be remembered, however, that the wave patterns seen in psychomotor epilepsy also occur in a number of psychiatric conditions other than schizophrenia without having led to the suggestion that these conditions are related to epilepsy. Similar wave patterns have even been observed in a considerable number of persons who neuropsychiatrically appear to be normal. We have also to ask, might not the fact that a large percentage of rela-

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tives of epileptics show abnormal records in their EEG, account in part for the occurrence of such records in schizophrenics (Barrera). Gibbs, Gibbs and Lennox also pointed out that the same wave patterns were found in a large number of psychopathic children.

In the material of Jasper, Fitzpatrick and Solomon, there was a large number of cases where schizophrenia was associated with convulsions, but they were mainly cases of symptomatic epilepsy produced by some secondary brain lesion. It is obvious that the combination of such a disorder with schizophrenia will not be too uncommon, for instance, a combination of head trauma and schizophrenia or of neurosyphilitic and alcoholic brain processes with schizophrenia and epilepsy.

Clinically speaking, mental states like moodiness, excitability, fugue conditions, amnesic hallucinatory episodes, etc., occur in many mental disorders, and especially in schizophrenia, and it is by no means certain that when such a symptom is shown it should be classified as epilepsy or is an expression of an epileptic disposition. These states are seen in so many different mental disorders that despite the clinical resemblance which exists between an epileptic equivalent and catatonic excitement, there is little reason to believe that the etiological mechanisms are related.

The wave patterns observed in the psychomotor form of epilepsy are so common in all kinds of neurological and psychiatric disorders that at present they can be called the waste basket of electroencephalography. For that reason alone it does not seem permissible to associate this pattern with epilepsy if no other clinical evidence is present to sustain the electroencephalographic indication.

It has been demonstrated by encephalography that there are certain cases diagnosed as schizophrenia which actually are due to gross organic pathology of the brain, and an equal number of schizophrenic patients show wave patterns which are suggestive of psychomotor epilepsy.

Further investigations along this line will give us an invaluable insight into the nature of schizophrenic symptoms in epileptic dis-

orders, and it may be expected that such investigations may demonstrate that the schizophrenic syndrome in these cases is only a symptomatic one. The same is true with regard to a considerable number of epileptic patients showing psychotic manifestations which resemble schizophrenia. These clinically interesting cases are comparable to schizophrenia pictures observed in cases of general paresis, cerebral arteriosclerosis, different types of alcoholic psychosis, brain tumors, etc. Whether and to what extent the localization of the process in the brain or the particular constitutional makeup of the individual is responsible for the schizophrenic coloring in these cases is yet a moot point. Hoch(26); Hoch and Davidoff(27). In our opinion it is essential that these cases be separated from the large group of true schizophrenias in the same way as symptomatic epilepsy is set apart from the original group of idiopathic epilepsies.

Although, on the basis of our clinical, genetic and electroencephalographic observations, we are disinclined to believe that epilepsy and schizophrenia are pathogenetically related disorders, we do not wish to go as far as Meduna who claims that the two disease groups are antagonistic to one another. We think that they are no more antagonistic to each other than they are to any other mental disorder in which schizophrenia-like pictures and casual epileptic attacks occur. This statement, of course, has no practical bearing on the efficacy of the convulsive shock treatment of schizophrenia.

SUMMARY AND CONCLUSIONS

1. In the majority of cases showing an association of epileptic and schizophrenic symptoms, we may deal either with symptomatic epilepsy in schizophrenia, or, what is more common, with a symptomatic schizophrenia in epilepsy.

2. The number of cases showing a mixed symptomatology is very small compared with the vast number of schizophrenics and epileptics where a combination of the two disorders is not present.

3. The clinical, genetic and EEG evidence

up to date does not permit the conclusion that epilepsy and schizophrenia are related disorders.

4. The group of schizophrenics showing abnormal EEG findings suggestive of epilepsy has to be split off from the schizophrenias and treated as a separate entity, similar to other organic psychoses with schizophrenic-like symptoms.

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FOLLOW-UP STUDY OF A SERIES OF PATIENTS TREATED BY ELECTRICALLY INDUCED CONVULSIONS AND BY METRAZOL CONVULSIONS¹

B. L. PACELLA, M.D., AND S. E. BARRERA, M.D.

Two fairly comparable groups of patients treated with metrazol and electric shock respectively, were studied as to the relative effects of these treatments on the various types of psychiatric disorders. The patients were carefully studied clinically prior to the administration of shock treatments and were

up to 24 months (Fig. 2). It may be noted in Figs. 1 and 2 that the majority of the metrazol cases were followed from 18 to 24 months, whereas the great majority of the patients receiving electric shock were seen between 6 months and 15 months subsequent to treatment.

In conjunction with the psychiatric examinations, neurological and medical examinations were carried out when indicated. X-rays of the dorso-lumbar vertebræ and electroencephalograms were taken routinely at the end of the treatment and at varying intervals after the patient's discharge from the hospital. In addition to psychiatric and laboratory studies, home visits were made by the social worker on many of the patients after they had left the hospital, in order to aid in determining the degree of socio-economic adjustment and independence which the patient had attained. Also, the social worker was employed to seek out those patients who were reluctant to continue their contacts with the physician, and reassure them in this regard. Patients who, after discharge from the Psychiatric Institute, were later readmitted to other institutions, were visited by the authors at these institutions. In some of the cases where visits were not possible, summaries of the case records were obtained from these institutions. As a result, post-treatment contact was made in over 95 per cent of all cases who had received shock treatments at the Institute.

We shall present a very brief statistical representation and analysis of our results in addition to a number of comments on some of the salient features which have impressed us during the course of this study. Our investigations included 126 patients treated with metrazol and 144 cases treated by means of electric shock. Of the metrazol-treated cases, 73 were diagnosed as dementia præcox; 33 as manic-depressive; 6 as involutional psychosis; and 17 as psycho-

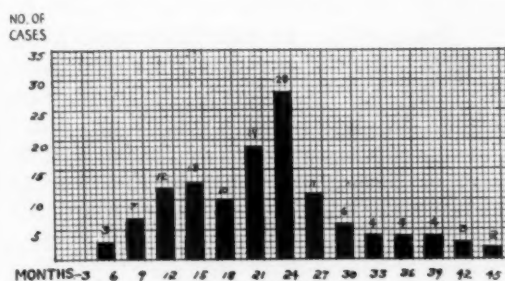


FIG. 1.

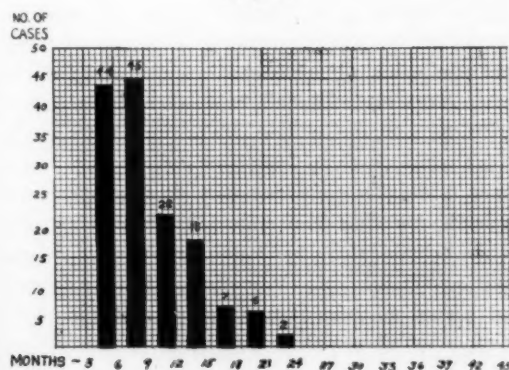


FIG. 2.

followed by the authors subsequent to treatment in a special clinic for periods exceeding six months. The metrazol-treated patients were seen for periods extending up to 45 months (Fig. 1 shows the distribution of the follow-up periods), while the electric shock cases were seen for periods extending only

¹ Read at the ninety-eighth annual meeting of The American Psychiatric Association, Boston, Massachusetts, May 18-21, 1942.

From New York State Psychiatric Institute and Hospital, Department of Psychiatry.

neurosis. The electric shock group consisted of 68 cases of dementia præcox; 39 cases diagnosed as manic-depressive psychosis; 14 with involutional psychosis, and 23 as psychoneurosis. The number of convulsions induced in each patient varied from 3 to 23 for the metrazol cases and from a minimum of 3 to a maximum of 24 seizures for the electrically-treated individuals. The average number of convulsions in the former group amounted to 10 while the average number of convulsions administered by electric shock amounted to 10.7 for this group as a whole.

Patients with organic or toxic central nervous system diseases are excluded from this presentation.

RESULTS

In evaluating and classifying our therapeutic results patients were considered either as unimproved (U); improved (I); much improved (MI); and recovered (R). Those classified as improved exhibited some amelioration of the symptoms but were nevertheless unable to make a satisfactory adjustment in the community, or were unable to obtain gainful employment as a result of the persistence of symptoms. Those classified as much improved exhibited a substantial change in their clinical picture for the better with ability to adjust at a tolerable level in the community and to obtain gainful employment in spite of some persisting symptoms. Patients considered recovered showed complete remission of symptoms to the point where they were believed to have attained or approximated their prepsychotic or pre-morbid status.

Oftentimes patients who had received a course of convulsive therapy showed a very temporary improvement or even an apparently complete remission of symptoms for approximately one to three weeks following termination of treatment, and then a fairly rapid return to the pre-treatment morbid level. Therefore, evaluation of therapy in all of our cases was not estimated until after the end of approximately one month subsequent to treatment, at which time a "stabilization level" seems to have been reached. By this time, patients have usually exhibited return of symptoms or else continue to maintain their improvement for

some time. This seemed to hold particularly true in the affective psychoses, and in the paranoid group, the latter often exhibiting a temporary reduction in their paranoid delusions and in their hallucinations, only to have them flare up again two to four weeks after cessation of therapy.

In order to obtain figures which might represent as closely as possible the degrees of improvement in the different types, and in order to "algamate" the different degrees of improvement roughly into one figure, it was decided to give a perfect score of three points to the cases considered as recovered; two points for those much improved; one point for the improved cases, and zero for the unimproved. In each diagnostic group therefore, the therapeutic results were listed according to the appropriate number of points, the figures were added up, and a percentage was computed on the basis of the ratio of this added figure to the expected perfect score for that particular group. The percentage figure arrived at was labelled the "index of therapeutic efficiency" (Index). It is recognized that this "index" is arrived at by utilizing a highly "artificial" system, and that we are expressing in terms of magnitude with definite mathematical relationship, very complicated, and not well-delimited clinical concepts. We do not wish to imply furthermore that the recovered group bears a 3:1 relationship actually to the improved group, or that the much improved patient showed twice the response that the improved patient exhibited. We did wish to express, in terms of one figure, a relative index or gauge of therapeutic response in the different diagnostic categories of patients which might permit easy comparison with each other, and also with the groups treated by a different method. In this regard, it appeared that the "index" might be of some aid.

Table I illustrates the results obtained in the manic-depressive group, and in the hebephrenic, catatonic and paranoid forms of dementia præcox. Although the number of cases included in each of these categories is rather small, they may serve to give some indication as to the probable therapeutic efficacy of convulsive therapy, in terms of the immediate outcome as related to the subsequent course of the patient. The cases

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diagnosed as the simple type of dementia præcox, involutional psychosis and psychoneurosis, were too few to warrant a statistical analysis, and therefore only the clinical impressions received as a result of the treatment and follow-up of these cases will be presented in this paper.

It may be noted in Table 1 that the results are summarized and the index computed for both the metrazol and electric shock-treated patients on the basis of observations made at the end of one month subsequent to cessation of therapy in each case

was seen again six months later, at which time he had undergone a complete spontaneous remission of symptoms, he was nevertheless considered to have relapsed following the shock treatment and was therefore listed in the unimproved group in our follow-up statistics. It is evident therefore, that the longer periods of time for which these patients are followed, the lower will the "index of therapeutic efficiency" decline, within certain limits, of course.

In an analysis of the figures in Table 1 it seems fairly clear that the manic-depres-

TABLE 1
METRAZOL CASES

Diagnosis	Time	No. of cases	Recovered	Much improved	Improved	Unimproved	"Index," per cent
Manic-depressive	.....1 month	33	21	5	7	0	80.0
	After 6 months....	33	14	2	3	14	49.0
Dementia præcox							
Hebephrenic	.....1 month	26	0	4	0	22	10.0
	After 6 months....	26	0	2	1	23	6.4
Catatonic	.....1 month	24	5	4	2	13	34.5
	After 6 months....	24	4	2	0	18	23.6
Paranoid	.....1 month	17	2	4	3	8	34.0
	After 6 months....	17	2	1	1	13	18.0

ELECTRIC SHOCK CASES

Manic-depressive	.....1 month	39	25	10	3	1	84.0
	After 6 months....	39	16	9	4	10	60.0
Dementia præcox							
Hebephrenic	.....1 month	18	0	7	1	10	28.0
	After 6 months....	18	0	4	2	12	18.5
Catatonic	.....1 month	24	4	7	6	7	44.5
	After 6 months....	24	3	3	3	15	25.0
Paranoid	.....1 month	19	4	4	4	7	43.7
	After 6 months....	19	1	4	1	13	22.0

and compared with the follow-up examinations of these same cases at periods after six months. If at any time after the six months' period, the patient showed a return or an increase in symptoms, he was classified accordingly in the particular therapeutic group to which he apparently belonged at the time, regardless whether at some later date he exhibited a second remission of symptoms. This relapse in the patient occurring or being maintained after 6 months subsequent to treatment was an indication to us that the therapeutic effect of the treatment had been partially or completely dissipated. As an example, if a fully recovered manic-depressive patient one year after his treatment showed a complete relapse and

sive and the involutional psychosis group as a whole showed a very high rate of recovery, or substantial improvement, immediately following a course of convulsive treatments, whether metrazol or electric shock was employed. There did not seem to be any significant therapeutic differences between metrazol and electric shock, insofar at least as the immediate outcome in this group is concerned. However, patients who have remained well for many months subsequent to treatments often complained of the dread of recalling the extreme fear reactions they experienced with the injections of metrazol, whereas no complaints of such extreme fear or dread were offered by patients treated with electric shock.

As these cases were followed over a period of months it became increasingly evident that neither type of treatment insures against recurrence of the illness. This seems to be particularly true in the rapidly fluctuating circular types of manic-depressive psychosis where shock treatment might produce a hypomanic or manic state from the depressed state, and then in the course of a week to several months the patient again enters the depressed phase. It would appear that in one of these cases, instead of hastening recovery, convulsive therapy merely seemed to accelerate temporarily the frequency of the cycle. Cases in the manic-depressive and the involutional category which responded best to treatment and which maintained their recoveries for the longest periods of time, were those patients whose illnesses were predominantly characterized by suicidal tendencies, feelings of extreme guilt and self-condemnation. Those which tended to maintain for the least time their improvement or which exhibited the least degrees of improvement were the rapidly fluctuating circular types of manic-depressive psychosis, or those with histories of many previous attacks, or those cases whose psychiatric pictures were prominently colored by persecutory ideas, paranoid delusions and aggressive behavior.

In the group of patients diagnosed as dementia praecox the results were not impressive, particularly when considered from a relatively long term viewpoint. However, it may be noted in Table I that the paranoid and the catatonic groups showed fairly good indices of therapeutic improvement. So far as temporary improvement was concerned, the alteration in the psychotic behavior of these patients for the better was noted in well over 35 per cent of the cases. In addition, in a few of these patients, the complete remission of symptoms continuing for a relatively long period of time seemed to be directly attributable to the convulsive therapy. It should be noted that patients who exhibited substantial improvement or complete remission, almost always had strong affective components consisting of depressive features and expressions of guilt, worthlessness, hopelessness, self-condemnation and especially suicidal tendencies, coloring their clinical pictures. This same observa-

tion held true for the hebephrenic and simple forms of dementia praecox. It should also be added, of course, that in general, those patients with good prognostic indications prior to treatment usually responded best to the shock treatments. These prognostic indications included among others, the duration of the illness, the prepsychotic personality, and the character of onset of the illness.

It might be remarked that so far we have not seen in our own material any case of dementia praecox which has been devoid of any of the depressive features mentioned above, attain a complete remission of symptoms, or an excellent degree of improvement as a result of shock treatment. Moreover, the patients who exhibited homicidal tendencies showed exceedingly low percentages of improvement and the relatively few improvements which did occur were not maintained for periods exceeding three to six months.

A careful clinical analysis of the cases did not seem to indicate that there was any significant differences in therapeutic effect between metrazol and electric shock in the treatment of schizophrenic patients, although the figures do suggest that possibly the electric shock seemed to have a somewhat greater index of therapeutic efficiency. However, when metrazol was first used at the Institute, it was employed largely in cases who had been ill for long periods of time, longer, in general, than those cases subsequently treated by electric shock. In addition the hebephrenic group which was treated with metrazol was a more deteriorated group clinically than those treated by means of electric shock. Inasmuch as the cases treated by metrazol were studied for longer periods of time than those treated by electric shock (see Figs. 1 and 2), the index listed for the follow-up "after six months" column might be expected to be relatively lower for the former group (metrazol), which it turned out to be.

Because of the fact that the concept of schizophrenia embodies a number of diverse groups it is possible that statistics representing improvements or recovery in the dementia praecox group as a whole without regard to the evaluation of certain prominent features in each case may at times be confusing and even misleading. This is even

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more so when time relationships relative to the period of treatment are not uniformly considered in the statistical evaluations. For these reasons, and because of many other variables which occur in studies involving large groups of patients it is difficult to compare gross statistics arrived at by different groups of investigators utilizing different statistical methods, different diagnostic procedures and even different methods of clinical evaluations. We have therefore refrained from making any statistical comparisons between our results and those of other investigators, but are well aware that the clinical impressions gained from the study of our patients run parallel to those expressed by others working with convulsive shock therapy.

Inasmuch as the psychoneuroses form such a heterogeneous group with clinical features which prominently differ from each other, it was not believed appropriate to consider this group as a whole statistically in order to evaluate our therapeutic results. A subdivision of the psychoneurotic patients into the various classifications made the individual groups too small to warrant a statistical survey which could be considered as valid. A compilation of these figures, therefore, has been omitted. This nevertheless has not interfered with our forming certain clinical impressions related to the efficacy of shock therapy in these cases.

In general, the results of metrazol and electric shock therapy in the psychoneurotics seemed rather discouraging. Metrazol in particular appeared to be not only not indicated as a therapeutic agent, but even contraindicated in a number of the cases, particularly those in the obsessive-compulsive category. Many months after termination of treatment these patients have uniformly complained that the metrazol treatments made their condition worse. In addition, some expressed a deep-seated fear, or antagonism towards the physician for employing such a "terrible" treatment. This reaction was not obtained in patients treated with electric shock, but nevertheless the awareness of memory defect resulting from convulsions in these neurotic patients often seemed to increase their apprehension and anxiety.

However, the electric shock treatments seemed to have been of some value in these

psychoneurotic patients who evidenced strong conscious feelings of depression and guilt (reactive-depression) and also exhibited acute anxiety with or without hysterical features, particularly when the illness had not been of long duration. It should be stressed that some form of psychotherapy apparently is highly advisable in conjunction with the shock therapy in the neurotic patients. This is suggested by the observation that almost all of the cases who exhibited some degree of improvement and who received no form of psychotherapy during and subsequent to the treatment have, after a period of six months or before, returned to the pre-treatment morbid levels, whereas a few of the cases which were subjected to intensive psychotherapeutic measures appeared to retain and even improve upon their improved state following the course of convulsive therapy. It might appear therefore that convulsive therapy is a valuable adjunct to psychotherapeutic measures in some of these patients rather than a sole means of treatment.

SUMMARY

We have presented briefly a preliminary report on the results of a follow-up study of psychiatric patients treated by means of electrically induced convulsions and by means of metrazol convulsions. Of the former, 144 cases were studied and of the latter, 126 patients were studied, all cases being followed for periods exceeding six months subsequent to treatment. By evaluating the two fairly comparable groups treated by these two different means, it appears that the therapeutic effects of both methods are essentially the same, particularly in the psychotic patients. However, the statistics suggest that possibly the electric shock method may be slightly more efficacious, at least in so far as the immediate results are concerned. Therefore, and in consideration of certain undesirable effects and reactions of metrazol therapy, particularly in the psychoneurotic patients, it would seem warranted at the present time to discontinue metrazol treatments in favor of electric shock convulsive therapy, providing convulsive therapy is to be given.

The convulsive treatments are undoubtedly of great value in the affective psychoses,

seemingly producing a slightly more favorable response in the manic-depressive group than in the involutional psychosis group. It appeared that, regardless of the diagnostic category, if the clinical picture is characterized by depressive features, consciously-expressed guilt feelings, feelings of worthlessness and self depreciation, and especially suicidal tendencies, convulsive shock therapy is of value and in fact seems to be highly specific for this type of symptomatology,

often resulting in dramatic and prolonged remission of symptoms.

Patients with prominent aggressive, belligerent and homicidal tendencies were not favorable subjects for convulsive therapy.

Follow-up studies, including the complications or sequelae with respect to memory loss, incidence of vertebral fractures, neurological complications, electroencephalographic disturbances, and other changes will be included in a separate report.

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A CONSIDERATION OF SOME EXPERIENCES WITH ELECTRIC SHOCK TREATMENT IN MENTAL DISEASES, WITH SPECIAL REGARD TO VARIOUS PSYCHOSOMATIC PHENOMENA AND TO CERTAIN ELECTROTECHNICAL FACTORS

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During the past two years electrical stimulation has been increasingly favored as the method of choice in convulsive shock therapy. A number of publications have enthusiastically acclaimed the simplicity, precision and safety of this procedure. Occasional warnings against indiscriminate use of various devices for electric shock are still complacently ignored by some psychiatrists, who belittle such objections as irrelevant in practice. However that may be, it remains an unconditional requirement for any physician, who intends to use a chemical or physical agent for therapeutic purposes, to seek a thorough understanding of the properties, actions, dosages, routes of administration, harmful effects, contraindications and incompatibilities of such an agent. It is embarrassing to realize how few of those who use electric shock therapy have tried to comply with these rules regarding the principle construction of the stimulating instruments or the rational criteria for their operation and control. It seemed, therefore, a justified endeavor to give a coordinated review of the essential conditions, as they appear from established knowledge and from observations during clinical experience.

The aim in applying an electric current to psychotic individuals is the provocation of neuro-muscular paroxysms, which, in a still unexplained manner, have enabled some of these patients to overcome their mental symptoms to varying degrees.

The kind of current necessary to elicit the desired convulsion is much the same as that which causes death. In order to confine the current effect to the scope of therapeutic procedure, one will, therefore, have to know the determinants of its stimulating or noxi-

ous properties. These factors must be considered not only each in itself, but especially with regard to their interrelationship. To facilitate a clear comprehension of the basic facts, one must begin with a brief review of each factor separately.

The type of current is perhaps the foremost determinant of any stimulatory effect. It is well known that pulsating currents of high frequency have comparatively little stimulating effect, while they may cause serious damage by the marked heat production of which they are capable. On the other hand, pulsating currents of low frequency, especially those with from 50 to 150 pulses per second, have a very marked stimulating effect. Constant currents are different from pulsating types, in that they will ordinarily stimulate at the instants of make and break only, unless their intensity is considerable. The stimulating ability of pulsating currents depends, in addition to the frequency, on the speed of rise and fall of amplitude of the individual pulses as manifested in the wave shape; it also depends on the speed with which the maximum amplitude is reached after the make and on the manner in which this peak amplitude is maintained or varied, as in surging types of current. Finally, it is significant whether the current flow is unidirectional, as in constant and interrupted D.C. and battery currents, or whether the direction of flow alternates. Although there is increasing evidence that pulsating currents, other than the widely used sinusoidal 60 cycle A.C., are of equal if not superior efficiency as a stimulus, none of these has as yet been sufficiently investigated to permit a wider practical exploitation. At present, the sinusoidal 60 cycle A.C.

appears to be the optimal type for use in shock therapy.

The amperage ranks next in significance for the threshold of stimulation. Although this factor differs considerably for various current types, other factors being equal, the amperage bears a quite constant relation to the time of application of the stimulus. The threshold cannot be computed with the same readiness in terms of voltage, due to a relatively wide variation in the impedance, or apparent resistance, which may be encountered.

The simple relationship of voltage, amperage and impedance, as expressed in Ohm's law, is not directly applicable, since living tissues do not behave electrically as a pure resistance, but more closely resemble a combination of resistance and reactance, chiefly if not entirely, capacitance. It is furthermore necessary to postulate another factor to account for a variation in impedance or apparent resistance, dependent upon current strength. Thus, if measurements are made with a small current of 0.25 ma., much higher values are obtained, than with a larger current of 500 ma. For the present the explanation of this latter phenomenon remains a matter of conjecture.

The time of applying a current for the purpose of stimulation is another critical determinant of the threshold value. Indeed, it would seem to equal the amperage factor in importance, since the magnitudes of amperage and duration display a far reaching reciprocity. However, in the ranges of minimal and maximal extremes, this relationship seems to be essentially different, and it cannot be stated yet which of the two factors outweighs the other in significance, especially regarding the demarkation of noxious values.

The place at which a current is applied plays an important part in determining the kind of response since the placement of the contact electrodes determines through what structures the current will pass. As a general rule it takes the shortest path between the contacts. A current passing transversely through the fronto-temporal region, near the premotor areas of the brain, may cause a generalized convulsion; the same current if transmitted from some point on the head, diagonally through the trunk to a

lower extremity, may cause death from ventricular fibrillation; and if transmitted at right angles to the long axis through a cross-sectional part of an extremity it may cause only a momentary local spasm. The size of the surface area of the contact electrodes, through its effect on the current density, exerts a distinct influence on the stimulatory efficiency. This seems to explain the fact that in shock therapy, where fairly large plate or cup electrodes are used, considerably larger currents are needed, than with point electrodes such as are used in direct cortical stimulation during neurosurgical procedures. The spacial diffusion of current varies with the different types. For a 60 cycle sinusoidal A.C. it is quite unlikely that this spread amounts to more than a slender spindle, and the occasional assertion that the greater portion of such a current would tend to spread superficially rather than along the shortest path, appears incompatible with the prevailing electro-physical conceptions.

Based on these considerations an instrument was designed and constructed by one of the authors, which provides the following controls for accurate and reliable operation.

The amperage, rather than the voltage, of the current output can be selectively maintained at any value from 0 to 500 ma., regardless of the impedance. The voltage is confined to a narrow range of fluctuation by means of a 10,000 Ohm serial resistance, which serves to reduce to a negligible value the proportional significance of impedance changes, of the extent possible in the tissues.

The application time is selectively adjustable from 0.1 to 1.0 sec. in steps of 0.1 sec. by means of an electrically operated mechanical time switch.

The output circuit consists of two parallel divisions, one serving as a trial path in which the current is allowed to stabilize at peak value, and where a variable resistor permits the approximation of the conditions anticipated in the other division, to which the current is shifted through the timing switch mechanism for treatment. The trial circuit serves conveniently for the adjustment of ammeter and voltmeter readings without haste.

A "built in" ordinary A.C. Ohmmeter is used to check the contacts of the electrodes.

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An automatic overvoltage protection is provided for each phase of the A.C. in order to safeguard against accidental excessive rises of voltage in the output circuit, such as might result from slipping of the electrodes under treatment conditions.

In addition to these arrangements, the amperage and voltage values are recorded through separate channels of an inkwriting oscillograph. A second trial circuit with a 250 Ohm resistor is here incorporated for purposes of calibration, whereas the alternative output includes the patient and serves to obtain a lasting record of all essential events in the application of the stimulus.

The apparatus just described has been used in shock therapy during the past 10 months. A total of 55 patients have received 500 single shock current applications, 400 of which were followed by an immediate generalized convulsion. Twenty times the intensity of the stimulating current was deliberately set below the convulsive threshold, and 80 times the actual convulsive threshold was higher than had been anticipated, so that the stimulation failed to elicit the desired type of response. These figures concern, however, stimuli of rather wide intensity range, including the first trial applications which were started as low as 30 ma. for 0.1 sec. Since then, the current dosage has been standardized on the basis of the earlier experiences, and in 45 patients a current of 500 ma. applied for 0.4 sec. caused a generalized convulsion on 250 occasions among a total of 260 stimulations, whereas only 10 times a higher threshold was encountered. This implies an efficiency index of 95 per cent.

The smallest stimulus to provoke a convulsive response under the given conditions of technic was 400 ma. for 0.2 sec. The strongest stimulus needed only once in an exceptional case was 500 ma. for 1.0 sec.

In 36 patients no increase in dosage became necessary with further applications; in 9 patients higher intensities of stimulation had to be used, sometimes as early as on the second treatment, but usually after 4 or more treatments. If treatments had to be resumed in some such cases after 8 weeks or more, the excitability had almost always returned to or nearly to the original level.

When a given stimulus failed to induce a convulsion after having been previously successful, the oscillographic tracings frequently indicated a change in impedance. If the total energetic magnitude of the stimulus was calculated, it became apparent that this value had dropped, at times considerably.

Whereas the application of the treatment current invariably resulted in an instantaneous unconsciousness, the average onset of the convulsive manifestations was 1.8 sec. after the stimulation; the shortest such interval was 0.1 sec.; the longest encountered among 400 convulsions was 24.9 sec. The duration of the convulsive responses averaged 38.1 sec., with a minimum-maximum range of from 23.0 to 55.0 sec. Neither the stimulus response interval, nor the duration of the convulsion showed any relation to the intensity of the stimulus. In the majority of cases, the duration of response was nearly the same on each treatment. Some patients, however, had a tendency to respond with shorter convulsions as treatments went on, while a few showed more marked variations in both directions.

The impedance of the treatment current similarly remained practically unaltered in all but a few cases. If there was any change, no correlation to other factors could be made out with any degree of consistency. The average value of impedance was 250 Ohms. The maximum-minimum range for all 55 patients was 200 to 350 Ohms. Patients with relatively higher or lower impedance seemed to have no different convulsive threshold if the factor of total energetic stimulus magnitude was adequate *per se*. Only if a change of impedance reduced that factor below an individually different minimum, the desired response failed to occur.

On the presumption that ultimately the excitability is a function of distinct qualitative and quantitative metabolic factors, some of these have been studied. Thus, the blood sugar concentration was determined in a number of cases to see if there was any correlation with threshold values, but the findings showed great disparity.

In some cases, sudden and extreme changes in body weight suggested alterations in the distribution of electrolytes and subsequent shifts in the fluid balance of the cell

and tissue compartments. Comparative considerations merely based on weight values as indicators of such events are obviously too crude, and discrepancies in such observations were to be expected. More sensitive biochemical tests have only recently been employed in an effort to solve this problem, and the question as to any significant correlation remains open.

One hundred electroencephalographic recordings on 30 patients did not throw any light on the state of excitability. Patients showing each of the 5 normal pattern types showed similar excitability. Cases with primarily abnormal EEGs did not all, or even in their majority, show different thresholds. Thus, patients with highly abnormal, but rather stable types of electrical brain activity, may have a higher threshold than others with much milder disturbances but marked instability of frequency characteristics and voltage of the cortical discharges. For example in cases with unstable electrical activity in the brain, recognizable by sharp regional contrasts of electrical activity and by marked irregularities in their physiological reactions, especially in their adaptive shift from one to another level of physiological activity, convulsions were elicited with relative ease.

Regarding the post-treatment controls of EEG our data are essentially in agreement with observations recently published by B. L. Pacella, S. E. Barrera and L. Kalinowsky. Here again it was our impression that instability of the pre-treatment activity is more specifically related to post-treatment changes, than other abnormal features in the standard pattern. Such cases seem to manifest advanced types of post-treatment alterations quite early in the course, some showing after 2 or 3 convulsions almost continuous and persistent dysrhythmic activity.

Our data are as yet too limited to permit more than a speculation, arising from an occasional observation, on the relations between the instability of the electrical activity of the cortex and its excitability. But there are indications that the excitability diminishes, if and when the electrical activity assumes a more rigid and fixed pattern, and the excessive, irregular discharges during adaptive processes become sluggish and inert.

Other factors within the scope of electroencephalographic investigation cannot yet be satisfactorily dealt with, but because of their great importance they will be mentioned briefly. They concern the spread of excitation after stimulation and any absolute or relative refractory phenomena immediately following the application of a stimulus, as well as one of the least understood mechanisms in a convulsion, namely its spontaneous cessation, regarding which recently published physiological data speak strongly against the significance of refractory states.

In relation to the clinical improvement no one factor or group of factors concerning the nature of the immediate response to shock stimulation has been noticed to have any reliable value as a prognostic indicator. However, for the therapeutic efficiency of this form of shock treatment, a generalized convulsive response seems an inevitable requirement in our experience. The routine manner in which treatments are administered is essentially in accord with the procedure used by other workers. This is demonstrated in detail in a moving picture shown in connection with this report. Treatments are given twice a week or rarely three times a week.

Preliminary and control studies include spinal X-ray plates, electrocardiograms, and whenever possible electroencephalograms. Careful psychiatric and general physical examinations, of course, also are carried out in each case. The selection of cases is conservative. During and following treatments, intensive psychotherapeutic support is insisted upon as well as an active occupational regime at the earliest possible time. As in our routine with metrazol the number of treatments is varied individually, but we have never seen any impressive results of lasting value if they had not become obvious after ten treatments. All of our successful cases had reached sufficient improvement at from two to six treatments, following which most of them continued their improvement spontaneously. The group of patients which is dealt with in this publication has as yet too brief a follow up period to make possible a final evaluation of the therapeutic results. So far metrazol and electric shock seem to be equally effective as far as the clinical achievements go.

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Centering our attention on manifest symptomatology rather than formal diagnosis, we found that among the various psychotic features the following had the greatest tendency to decrease in intensity or incidence as a result of treatments: negativism, as manifested in refusal to take food; mutism, or various other signs all along the scale to a full stupor; hyperkinesia, either general locomotor, or in the form of overtalkativeness; acute affective disturbances such as depression or anxiety; lack of interest due to withdrawal and apathy rather than classical autism; hallucinations and delusions, mainly those of the fantastic or nihilistic depressive type; confusion and bewilderment.

Somatically, we noticed that numerous minor ills improved or disappeared. Among the more remarkable changes were marked improvement of a chronic anal fistula, the regulation of the menstrual cycle, the disappearance of acne vulgaris and eczematous dermatoses. In general, it seemed as though most of these changes pointed to alterations in the functional display of two essential regulating systems in the organisms, namely, the endocrine hormonal and the autonomic nervous systems.

SUMMARY

1. The properties of electrical currents, which basically determine the stimulatory efficiency are: type of current, amperage and length of time stimulus is applied. The threshold cannot be computed accurately in terms of voltage, due to variations in impedance.

2. An instrument for electric shock therapy which utilizes these principles has been briefly described.

DISCUSSION

JULIUS LOMAN, M.D. (Boston, Mass.).—The authors correctly stress the need for thorough understanding of the properties, actions, dosages, possible harmful effects and contraindications of any new method of therapy, especially such a drastic method as electric shock therapy. They are to be congratulated on their successful efforts in controlling all the electrical factors involved in the method before its application. It is here where the cooperation of the neuropsychiatrist and the electrophysicist plays an important role, since the former cannot be expected to be an expert in electrical phenomena.

3. The experiences during use of this instrument for convulsive therapy in 55 patients have been discussed in regard to physio-pathological, and psycho-somatic observations.

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If these data are corroborated by other workers, they will be important contributions in our understanding of convulsive phenomena.

During and following shock therapy a complex series of events occur in the body—to name only a few: apnoea, hyperpnoea, changes in blood oxygen, sugar and other metabolites, alterations in blood pressure and blood flow. All these and other changes which occur in the body are probably of secondary importance compared to the direct effect of the shock to the ganglion cells. Thus, I believe, too great importance has been attached to the part that apnoea with its associated cerebral hypoxia plays in the production of the mental changes. It is unlikely that apnoea of 30 to 60 seconds' duration in itself produces any significant injury to the brain, and I should hazard the prediction that if the secondary effects of cerebral shock could be eliminated, the same therapeutic results would be obtained. During shock therapy an actual diaschisis of the brain occurs. This diaschisis is manifest not only by the state of unconsciousness, but by the amnesia and electroencephalographic changes which follow the attack. In insulin hypoglycemia the injury to the brain is related to the deprivation of sugar to the ganglion cells. In metrazol and electroshock the injury is probably related to the direct over-stimulation and exhaustion of the ganglion cells. If the shock is repeated frequently and at short intervals, the

liability to permanent damage of the brain is obviously enhanced. It is probable that a certain degree of injury to the brain is a prerequisite of successful therapy in shock treatment. Thus improvement is usually seen in those cases in which sufficient stimulation of the brain has been given to cause a generalized convulsion in contrast to those cases in which only minor attacks have been produced.

One of the common theories to explain the improvement seen after the various types of shock therapy has been that stimulation of cerebral function occurs. Most of the evidence, however, indicates that the opposite state obtains, that is, a depression of cerebral function. After insulin hypoglycemia, for example, the brain is relatively slow in taking up its normal quota of sugar and oxygen. One may predict that a similar lag in function takes place after metrazol and electric convulsions.

There is need, I believe, for greater standardization of the number of treatments given to the individual patient, at least in the affective types of psychoses. When improvement occurs it is seen after relatively few treatments, so it may be wise to establish some limit in the number of treatments, perhaps eight to ten. In those patients who do not improve after such a course, therapy should possibly be either discontinued or the brain should be allowed a period of recovery from the repeated shocks before a further course is given.

COMPARATIVE ELECTROENCEPHALOGRAPHIC OBSERVATIONS FOLLOWING ELECTROSHOCK THERAPY USING RAW 60 CYCLE ALTERNATING AND UNIDIRECTIONAL FLUCTUATING CURRENT¹

L. D. PROCTOR, M. D., AND J. E. GOODWIN, B. A. SC., TORONTO, ONTARIO

The slow wave or "delta" activity recorded from the cortex by the electroencephalograph following a series of electroshock convulsions has already been described in the literature, as, for example, in a recent paper by Levy *et al* (1), and Pacella *et al* (2). Since the early part of 1941, when a raw 60 cycle unit was built and put into operation at the Toronto Psychiatric Hospital, electroencephalographic observations have been made routinely on patients so treated, before, during and after treatment.

Following a visit of one of the authors (L. D. P.) to Norwich Village Mental Hospital in Connecticut, Dr. Friedman, Dr. Reiter and Dr. Wilcox, who had collaborated in the development of unidirectional fluctuating current for electroshock therapy, agreed to supply such a unit for our use. We were thus able to compare the electroencephalographic findings on two groups of 15 patients. Each group received an average of six grand mal shocks, the first group by means of raw a.c. and the second with interrupted unidirectional current. The two groups were approximately comparable by age, percentage of each sex, proportion of affective to schizophrenic psychoses, and duration of illness.

APPARATUS

The raw 60 cycle a.c. apparatus is comparable to that supplied by the various commercial firms, consisting of (1) a means of regulating the power supplied to the head electrodes, and (2) an accurate timing device to control the duration of application of the current. There are various safety devices which guard against accidental application

of too much power, and also a resistance measuring circuit for estimating, very approximately, the probable amount of power that will be necessary to obtain a convulsion.

The Reiter apparatus is described in the *Journal of Nervous and Mental Diseases* (3). It supplies an interrupted unidirectional current roughly sinusoidal in wave form, except for a lag in its return to zero at the end of each cycle. This type of wave corresponds to the C₁ wave form in Dr. Friedman's publication in the *AMERICAN JOURNAL OF PSYCHIATRY* (4).

Records of current, voltage and duration of shock were made routinely by connecting, through appropriate electrical networks, three pens of the electroencephalographic ink writer to either of the electroshock units and to an electrical timer. Thus measurements of these values were recorded at the actual time of applying power to the electrodes on the patient's scalp. The sensitivity of the pens having been previously determined, the task of computing the power applied to the electrodes became a relatively simple one. In FIG. 1 is a sample of these measurements taken during a treatment which resulted in a grand mal convulsion. As noted in the literature, approximately 400 to 600 milliamperes of raw 60 cycle a.c. current at 80 to 135 volts, for 0.1 to 0.3 second (3 to 24 watt-seconds) were required to obtain a grand mal seizure. The Reiter apparatus, using fluctuating unidirectional current, required only 30 to 55 milliamperes at 10 to 25 volts, for from 2 to 4 seconds (0.6 to 5.5 watt-seconds) to produce a convulsion.

TECHNIQUE

The technique is fundamentally that used in standard convulsive therapy. A rigid surface is provided on which the patient can be restrained at the shoulder and hip girdles, with a pillow under the mid-thoracic region

¹From the Departments of Psychiatric and Medical Research, University of Toronto. This work was made possible by a grant from the Rockefeller Foundation and has been directed by Professor Clarence B. Farrar, and Professor Charles H. Best.

to extend the back, and a gag to protect the mouth. The head gear developed by the designers of the Reiter apparatus suffices to protect against dislocation of the jaw and furnishes a means of properly locating and applying the electrodes. In using the raw 60 cycle, the electrodes were placed bi-temporally; with the Reiter apparatus left-temporal and vertex locations were used. As many as three trials were made at each treatment if such were necessary to obtain a grand mal seizure.

Electroencephalographic recordings were taken whenever possible before treatment,

of marked slow wave activity was paralleled by such clinical abnormalities as acute confusion, and other unfavorable symptoms. It was decided therefore to use the quality of the patient's electroencephalograph as one of the criteria for the number of grand mal convulsions to be induced in any one series. Six grand mals has been the average number of shocks administered to each patient.

RESULTS

The amount of slow wave activity following use of the two types of apparatus is

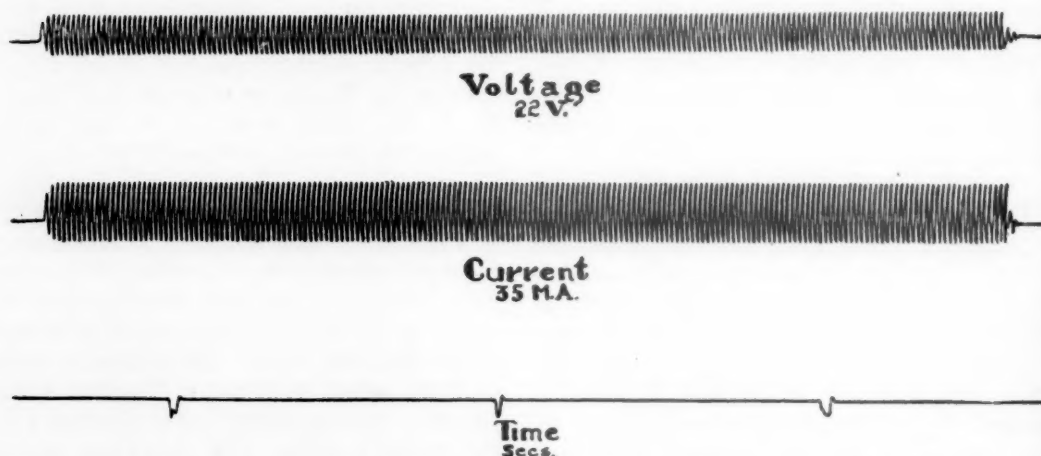


FIG. 1.—Typical record of voltage and current during an electroshock. Duration of shock shown was approximately 3 seconds.

and after the third (or fourth), and always after the sixth, and each subsequent grand mal convulsion, if any. In each case the recording was taken between five and twenty-four hours after the seizure. We had observed that there was little decrease in the slow frequency content, when present, for approximately two days following the last electroshock. In order to evaluate the amount of slow wave activity observed in the electroencephalographs, a five-point grading scale, essentially similar to that used by P. A. Davis(5), was employed. Thus the symbol — indicated no slow wave activity. The various amounts were rated +, ++, and +++, the latter representing a very large slow wave content. Fig. 2 illustrates samples of this slow wave activity.

Early in the course of our study it was observed that in several cases the appearance

shown in Table I and graphically in Fig. 3. A small change in alpha rate was noted among those patients treated with raw a.c. (Table II). A slight trend, statistically insignificant on such a small number of cases, would suggest (Table III) that individuals with slow alpha rate are somewhat more likely to develop slow waves following electroshock than are those with a faster alpha rate.

Among these 30 cases, 4 were noted who showed occasional six per second activity prior to treatment. All 4 showed a post-treatment slow wave content of +++, chiefly of six cycle frequency.

CLINICAL RESULTS

The results, using the two types of apparatus on this small group of patients,

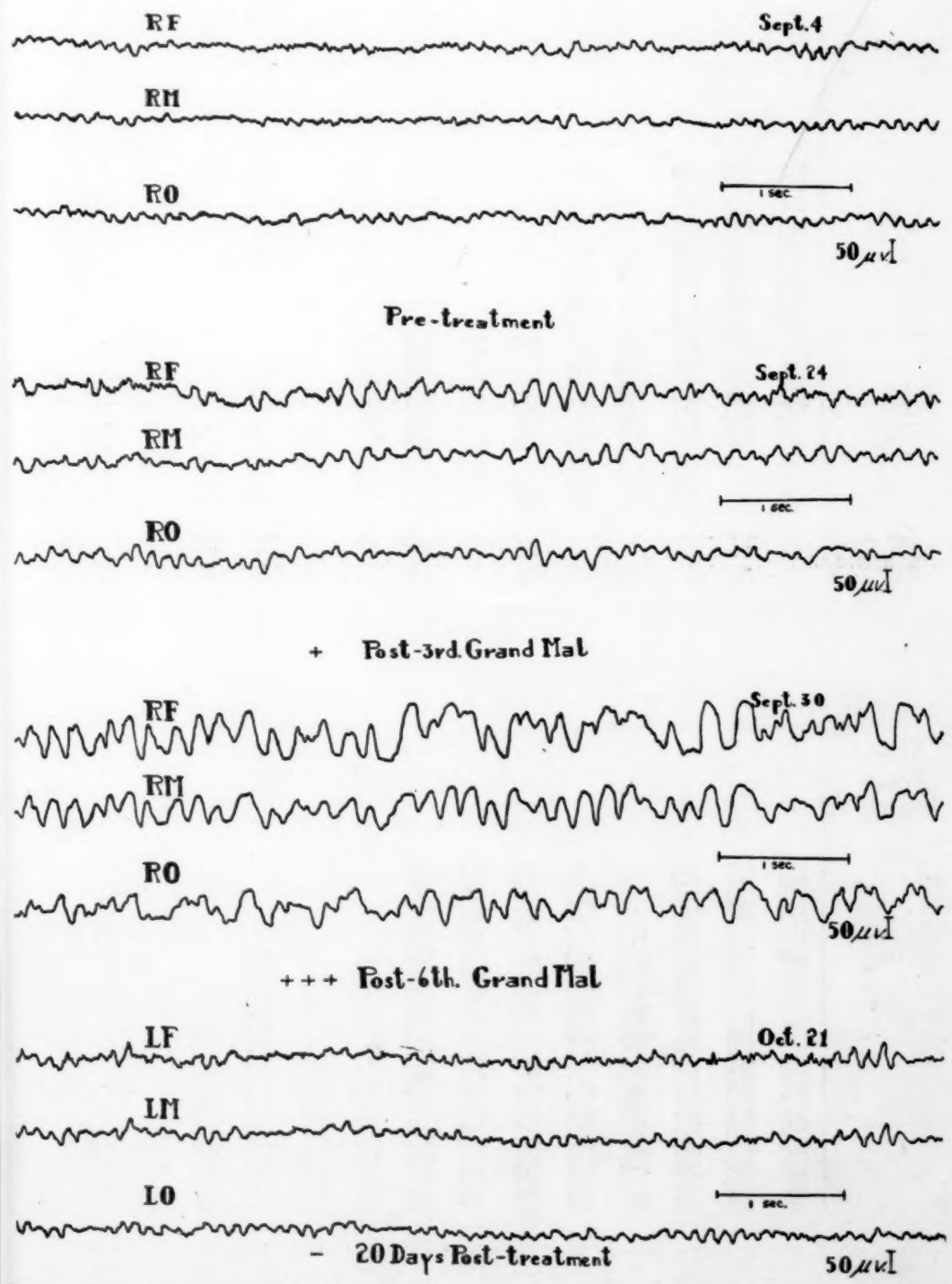


FIG. 2.—Example of electroencephalographic patterns, before, during and following electroshock therapy.

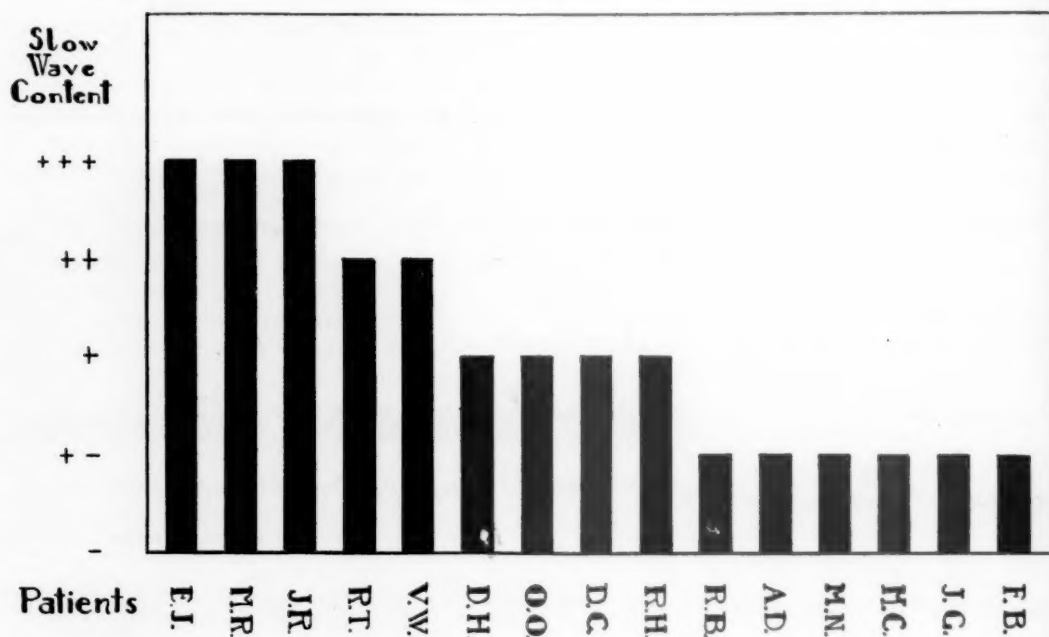


FIG. 3 (A).—Delta wave formation following six grand mal seizures using unidirectional fluctuating current.

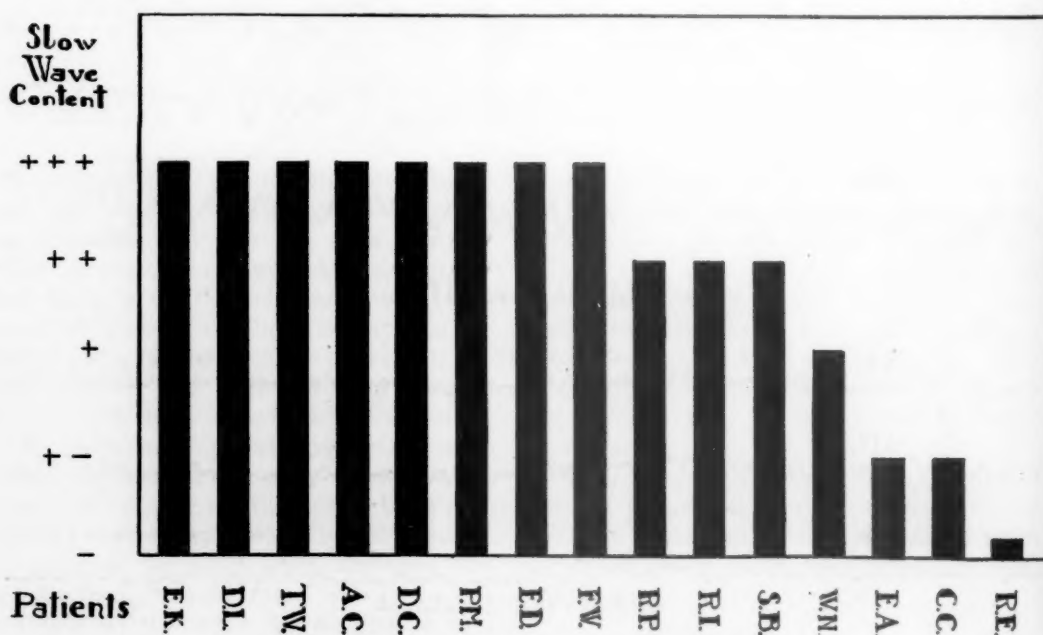


FIG. 3 (B).—Using raw alternating current.

suggest that there is little, if any, difference in the therapeutic value of these two methods of inducing grand mal convulsions and, as has been pointed out in the literature on numerous occasions, the benefits are comparable to those obtained by the use of metrazol therapy.

CLINICAL ABNORMALITIES

Early in our series we were not fully aware of the significance of delta wave formations with regard to clinical abnormalities. Fig. 2 shows a progressive series of electroencephalographs on a patient who was given seven grand mals. After the

that there is a definite relationship between the clinical abnormalities and the cortical dysrhythmia.

DISCUSSION

The presence of slow wave activity in the electroencephalograph is so often associated with an organic etiology, as in cases of head injuries, brain tumours, or the so-called deteriorated epileptics, that its appearance following electroshock is worthy of some attention. This build-up of the slower waves in the electroencephalogram appears to be one of the more predictable sequelae of electroshock therapy.

This slow wave activity has several char-

TABLE I

NUMBER OF PATIENTS SHOWING SLOW WAVE AND DELTA ACTIVITY FOLLOWING 6 SEIZURES INDUCED BY (1) RAW A. C. (2) INTERRUPTED UNIDIRECTIONAL CURRENT

Type of impulse	Slow wave and delta content					Total	Per cent showing ++ and +++ slow waves
	-	+-	+	++	+++		
A. C.....	1	2	1	3	8	15	70 per cent
U. C.....	0	6	4	2	3	15	35 per cent

TABLE II

AVERAGE CHANGE IN ALPHA RATE, FOLLOWING 6 EFFECTIVE SHOCKS

Type of impulse	No. of patients *	Average of alpha rates — per second			
		Before	After	Average change	Rates of changes
A. C.....	14	10.1	9.4	-0.7	0 to -1½ cycles
U. C.....	10	10.3	10.3	0	-0.5 to +0.5 cycles

* In 6 cases, pre-treatment electroencephalographic records were not available, or were too poor technically for use.

TABLE III

AVERAGE ALPHA RATES (BEFORE SHOCK) FOR EACH SLOW WAVE CATEGORY (BOTH TYPES OF SHOCK COMBINED)

Slow wave content	No. of cases	Average alpha rate per second	Range
-	1	11.5	11½ — 12
+-	6	10.9	10 — 12
+	3	10.7	9½ — 11
++	4	9.9	9½ — 10½
+++	10	9.6	8 — 12

sixth grand mal this patient exhibited some confusion which progressed in degree. Following the seventh grand mal, he showed confusion, anorexia, headache and dizziness for two to three weeks. On the disappearance of these symptoms, his electroencephalograph had returned to within normal limits, and memory tests showed no abnormalities. This has been seen to occur in 5 of the 30 patients in our series and it would suggest

acteristic features. Its onset usually occurs after the third or fourth grand mal seizure and it increases very rapidly in content as treatment continues. The amplitude is sometimes quite high. The frequency may be anywhere from 2½ to 7 cycles, although 6 cycles is very common on termination of treatment. The slow waves disappear quite rapidly (the slower frequencies first). There is, however, a residual six per second activity that occasionally persists as long as we have been able to follow these patients electroencephalographically. In a few cases this has been as long as several months.

The rapid increase and attenuation of the slow frequencies following six electrically induced grand mal seizures is in contrast to the trend of events during metrazol therapy. In the latter case, onset and final disappearance of these abnormal patterns is a much slower process. Furthermore, the electro-

encephalograph of a patient who has undergone many metrazol treatments, shows a recording more nearly approximating those sometimes seen in cases of epilepsy of long standing. The interesting point arises as to whether the physiological effects of electroshock therapy are more transient in nature, and less likely to produce prolonged after-effects.

A comparison of the two groups of patients treated with raw a.c. and unidirectional fluctuating current, shows that 70 per cent of the former showed slow wave or delta activity of sufficient content to warrant a ++ or +++ category after 6 effective shocks, whereas only 35 per cent of the cases in the second group showed a similar amount of abnormal frequencies. In addition, we noted that the average "alpha" rate of the first group decreased from 10 per second to 9.5 per second. In contrast, those receiving unidirectional fluctuating current, showed no similar downward drift in alpha rate during treatment. A possible explanation not to be over-looked is the difference in the electrode placement in the two groups.

When the incidence of post-shock slow waves was examined in relation to "alpha" rate (Table III) it was noted that there was a slight tendency for a higher slow wave incidence among the lower "alpha" rates. With such a small number of cases this correlation would not be statistically significant, but there does appear to be a small but definite trend in this direction.

Possible Prognostic Value.—It was of interest to note that in all cases showing three plus deltas, these patients were unimproved or so slightly and transiently improved that they required hospital supervision before, during and since electroshock therapy. Those patients showing —, +—, or +, slow wave formation, except in one case (D. C.) showed sufficient maintained improvement to be discharged from hospital and they have carried on without supervision in the community. We may have here an aid to prognosis, but our series is much too small to more than suggest this value of our electroencephalographic observations.

CONCLUSIONS

Electroencephalographic observations have been made on 30 patients, 15 of whom re-

ceived convulsions by means of raw a.c., 15 by means of unidirectional fluctuating current; and it is suggested that there is a significant increase in the occurrence of slow wave formations in that group receiving raw a.c. when compared to the group receiving unidirectional fluctuating current. Five of the 30 cases have been found to show clinical abnormalities coinciding with electroencephalographic abnormalities and it is suggested that there is a relationship between these two phenomena. There is a possibility that cerebral dysrhythmia is more easily brought about following electroshock therapy in those patients who do not recover to the point of being well enough for discharge from a mental institution.

The above findings are submitted as a preliminary report and the authors do not intend to infer that the series of patients observed is large enough to do more than suggest the relationships discussed in this paper.

In addition to the patients treated in the research unit of the Toronto Psychiatric Hospital, the above series included patients from the Neuro-psychiatric Clinic of the Toronto Western Hospital by permission of Dr. H. K. Detweiler, physician-in-chief. The unidirectional electroshock unit is the property of the Toronto Western Hospital.

The authors wish to express their appreciation to Mr. Gordon Parkes, radio technician of the research unit, for his valuable assistance in obtaining the electroencephalographic data presented in this article.

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CONVULSIVE SHOCK THERAPY IN ELDERLY PATIENTS— RISKS AND RESULTS¹

VERNON L. EVANS, M.D., AURORA, ILL.

Many of the general medical profession, as well as psychiatrists, view with alarm the therapeutic induction of convulsions in people who are elderly and oftentimes in debilitated physical condition. It was thought that the following study of such cases might be worth while in order to evaluate the benefit obtained from the treatment as compared with the risks entailed. The cases studied were the first 50 consecutive patients over 50 years of age who have had one or more convulsions induced by either metrazol or electric shock as a psychiatric therapeutic measure. The patients were treated between November 1938 and July 1941 at Mercyville Sanitarium. There were 37 patients treated with metrazol, 8 treated with electric shock, and 5 treated with both metrazol and electric shock. Of the 50 patients over 50 years of age, 17 were over 60, and 5 of these were over 70. The average number of convulsions was 14.9

TECHNIQUE

The patients were placed on ordinary beds with ordinary mattresses without a pillow for their treatment. No mechanical restraints were used. At least four attendants were required for each treatment to steady the patient during the seizures, to place the mouthpiece between the teeth, to prevent abnormal twisting of the head and neck, and to apply pressure over the sternal area to prevent the forward lunge which causes vertebral compression. No curare or spinal anesthetics were used.

RESULTS

The 50 cases treated fell into the following classifications: involutional psychosis, 21 cases; manic-depressive psychosis, 19 cases; schizophrenia, 6 cases; and psychoneurosis, 4 cases. The patients were divided into 3

groups—recovered, improved, and unimproved. Patients were considered recovered when they seemed to be entirely well, both to the physician and their family, and they were able to resume their usual occupations. Improved patients were those who were able to return home and adjust quite well to life there, although there were still some definite abnormalities noticeable. (With only one or two exceptions, all of the patients were brought to the sanitarium primarily because their thoughts or actions were so abnormal that they could not be cared for at home.) Unimproved cases were those in which the patients were no better at all or were only slightly improved, and in which their status as regards supervision, institutionalization and the like remained unchanged. The results did not differ materially from those reported by numerous writers for patients with the same diseases in younger age groups (4, 5).

Of the patients with involutional psychosis, 13 were of the melancholy type, and of these 6 recovered, 5 were improved and 2 were unimproved. There were 3 cases of paranoid involutional psychosis, and of these 1 improved and 2 were unimproved. There were 5 cases of mixed paranoid and melancholy type, and of these 1 recovered, 3 were improved and 1 was unimproved. In the group of manic-depressive psychosis, there were 15 cases of the depressed type, and of these 12 recovered, 2 were improved, and one patient died during treatment. He was classified as unimproved, although his death was not thought to be due to the treatment itself. There were 2 cases of manic-depressive psychosis—manic type, and of these 1 recovered and 1 was unimproved. There were 2 cases of mixed type, and both of these cases were classified as improved. Of the 6 cases of schizophrenia, 3 were improved and 3 were unimproved. The 4 psychoneurotic patients were of the following type: one case of hypochondriasis of five years' duration in a woman aged 54, one case of hysteria

¹ Read at the ninety-eighth annual meeting of The American Psychiatric Association, Boston, Mass., May 18-21, 1942.

of one week's duration in a woman aged 50, one case of neurasthenia and hypochondriasis of six months' duration in a woman aged 52, and one case of hysteria, hypochondriasis and depression of six months' duration in a woman aged 63. The woman with hysteria recovered completely and the other 3 patients improved enough to return to their homes and some of their occupations. It is true that involutional psychosis could be considered as the diagnosis in all of these cases because of their ages, but they would all have been considered undoubted cases of psychoneurosis if they were several years younger and all of them had shown psychoneurotic tendencies earlier in their lives. The results in all cases treated were 21 recovered cases, 19 improved cases and 10 unimproved cases.

BAD PHYSICAL RISKS

To date, no patient has been refused convulsive shock therapy because of physical risks where it was thought that the therapy might be beneficial from a psychiatric standpoint. However, many cases were kept on prolonged conservative treatment before shock treatment was started where the risk was thought to be increased. The treatment has been given with the thought in mind that a certain mortality rate was to be expected, just as one expects a mortality rate in such established surgical procedures as appendectomy or cholecystectomy, or such experimental surgical procedures as abdominal sympathectomy or prefrontal lobotomy. It can be stated that there have been no deaths directly attributable to the treatment, although one has occurred during its course.

There were several patients who showed obvious physical abnormalities in addition to being older than most cases treated. Seven patients were undernourished to the point of emaciation. Four patients were desperately ill and nearing exhaustion from excitement and increased motor activity at the time the treatment was started. Case 9 (reported elsewhere)(1) was a woman aged 56 with general osteoporosis and compression fractures of several of the vertebræ before the treatment was instituted. This patient had involutional melancholia and was kept under conservative treatment for one year with no

apparent benefit before the shock treatment was instituted. In this case there were no additional vertebral fractures, although there was a fracture of the humerus. This occurred during the third treatment. It was a compression fracture of the surgical neck of the bone and it healed in two months, and there was no recurrence when six more treatments were then given. She made a complete recovery under shock treatment.

Case 25 was a man aged 52 with bilateral congenital club-foot. He had 11 convulsions induced with metrazol with no untoward effects. He made a complete recovery from manic-depressive psychosis—depressed type. Cases 40 and 43 were both women over 60 years of age whose systolic blood pressures were above 200 millimeters of mercury before treatment was instituted. Case 44 was a woman aged 74 with manic-depressive psychosis—depressed type. Her electrocardiogram showed complete left bundle branch block. After failure of response to conservative therapy for over one year, the patient was given electric shock therapy. She had 20 convulsions with no untoward effects, and she made a very nice adjustment and was discharged as recovered. Case 49 was a woman aged 54 with involutional melancholia and reactive depression. She had had a thyroidectomy a year previous to admission and had developed myxoedema. Her electrocardiogram showed inversion of the T-waves in leads 1 and 4 and flattening in leads 2 and 3. With the administration of 4 grains of desiccated thyroid substance daily, all of the T-waves became upright and of fair amplitude. She was then given electric shock therapy without incident and showed a marked improvement in her mental condition. The myxoedema probably played a part in the etiology of the patient's symptoms, although the outstanding features in her case were agitation and increased motor activity, rather than apathy, lethargy and slow cerebration. The typical puffy myxoedematous facial appearance of the patient disappeared under thyroid therapy, but there was little if any change in her motor activity or thought content until the shock therapy was instituted. She then became more cheerful and composed, and was able to go home and do such things as play cards with friends or go to

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COMPLICATIONS

Besides the fracture of the humerus mentioned above, there was another very similar fracture in case 2, a woman aged 54, who was quite emaciated and who had had a psychoneurosis of several years' standing. In her case also, the fracture healed without trouble, and there was an improvement in her psychoneurosis. Case 11 was a man aged 59 who died during the course of treatment. He was a debilitated person who had had manic-depressive psychosis for several months and he contracted pneumonia two days after his second treatment and died in 36 hours. Although permission for autopsy was not obtained, it was not thought that this was an aspiration pneumonia, but that it had developed because of the patient's debility. In several cases the patients were noted to be forgetful and confused toward the end of their course of treatment, but this always disappeared within 2 or 3 weeks after the treatment was discontinued (2, 3, 6, 7). In a few cases there were persistent slight memory defects, but they seemed to be of very insignificant consequence.

SUMMARY

Fifty patients over 50 years of age who had severe mental illness were treated with convulsive shock therapy. Of these 50 patients, 40 were either recovered or improved

enough to be discharged to their homes. Ten remained unimproved. Although the risks taken seemed to be great, the complications and untoward results were remarkably few. Most of the cases had failed to respond to several months of conservative treatment, and in many cases it seemed almost certain that recovery would not occur unless drastic treatment was instituted. Even though some of the cases might have recovered eventually with prolonged conservative treatment, the time and economic saving was well worth the risks taken.

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A STUDY OF MALNUTRITION IN CHRONIC SCHIZOPHRENIA¹

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In a previous paper by Sharp and Baganz(1), a study was made of the problem of malnutrition in institutionalized psychotic patients. This study dealt with the entire hospital population except those patients who were acutely ill or had wasting diseases, while the present paper deals with the problem of malnutrition in one definite mental disorder only, namely, chronic schizophrenia.

The extent and degree of malnutrition of 374 schizophrenic patients was determined at the time of admission and also determined after the patients had been hospitalized for eight years. These 374 patients were selected because they were the maximum number whose weight could be studied over an eight-year period. This period was selected as being the maximum one in which a statistically significant number of patients could be investigated. A longer period of time or a greater number of patients could not be studied because the hospital did not receive its first patient until November, 1930. Those chronic schizophrenics who had active tuberculosis, who were bed-patients, who were on the acute infirmary ward and those in whom the diagnosis was questionable were excluded.

The hospital records of these schizophrenics were surveyed to determine (1) height and age at the time of admission; (2) deviation from normal weight at the time of admission; (3) deviation from normal weight eight years after admission; (4) the degree of activity of each patient and (5)

the type of hospital care each patient received.

The great majority of the patients in this study were admitted to this hospital shortly after its opening from other Veteran Administration Facilities and from state hospitals. Many of them had been hospitalized for a number of years. None of these cases was considered to be a first admission and none had been psychotic for less than a year at the time of admission.

As in all statistical surveys of this type, the question of what constituted normal weight was a problem. A table (Fig. 1) of normal weight for men was adopted from a report of the Medico-Actuarial Mortality Investigation.

Since all the patients were weighed nude a standardized deduction of ten pounds was made from this table for the weight of clothing. This allowance of ten pounds being in excess of what would normally be the weight of their clothing tends to cause a lowering of the standard weight which in turn tends to minimize rather than exaggerate the degree of malnutrition.

The mathematical average age on admission of these 374 schizophrenics was found to be 38 years. While the range of age was from 28 to 56 years, the number of patients who had an age variation of more than ten per cent from the average was extremely small. This small number was considered to be statistically unimportant particularly as the age changes in adults are not accompanied by important weight changes. The mathematical average height of this group was found to be 66½ inches.

Fig. 2 compares the actual height and weight of these 374 schizophrenic patients on admission to a normal height and weight for male individuals 38 years of age. This

¹ Read at the ninety-eighth annual meeting of The American Psychiatric Association, Boston, Massachusetts, May 18-21, 1942.

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chart indicates a marked tendency to group from the 63 to the 69 inch height and from the 116 to the 146 pound weight. It is also seen that the line representing the normal height-weight ratio transects this group at about the junction of the upper and middle third.

Fig. 3 compares the height and weight of this group after eight years in the hospital to a normal height and weight for male individuals age 46. It should be noted that with the advancing age of the group the

patients had been hospitalized for a varying period indicates that the hospital population as a whole had a decrease in the amount of malnutrition while the extent of malnutrition in the schizophrenics was increased. Eight years after admission, 62 per cent of the schizophrenic patients were underweight, while only 49.9 per cent of all the patients who had been hospitalized for one to nine years were underweight. After a period of eight years 44.6 per cent of the schizophrenics were ten or more pounds under-

Age, years	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	6 ft. 0 in.	6 ft. 1 in.
15	107	112	118	126	134	142	152	162
16	109	114	120	128	136	144	154	164
17	111	116	122	130	138	146	156	166
18	113	118	124	132	140	148	158	168
19	115	120	126	134	142	150	160	170
20	117	122	128	136	144	152	161	171
21	118	123	130	138	145	153	162	172
22	119	124	131	139	146	154	163	173
23	120	125	132	140	147	155	164	175
24	121	126	133	141	148	156	165	177
25	122	126	133	141	149	157	167	179
26	123	127	134	142	150	158	168	180
27	124	128	134	142	150	158	169	181
28	125	129	135	143	151	159	170	182
29-30	126	130	136	144	152	160	172	184
31-33	127	131	137	145	154	162	174	186
34-35	128	132	138	146	155	165	176	188
36-37	129	133	139	147	156	166	178	190
38-39	130	134	140	148	157	167	179	192
40-41	131	135	141	149	158	168	180	193
42-43	132	136	142	150	159	169	181	194
44-45	133	137	143	151	160	170	182	195
46-50	134	138	144	152	161	171	183	197
Over 50	135	139	145	153	163	173	184	198

FIG. 1.—Normal weights for men.

normal height-weight ratio is only slightly increased. Because of this, variations from the normal height-weight ratios were based on this new standard. A study of this chart will reveal a tendency to greater scattering of the group and what grouping there is, is considerably lower in relationship to the line designating a normal height-weight ratio.

The extent of malnutrition at the time of admission in the total hospital population was approximately the same as in the selected group of chronic schizophrenics. (Fig. 4.)

Of the total hospital population, 1164 in number, 56.6 per cent were underweight; 52.4 per cent of the schizophrenic patients were underweight. A survey made after all

weight and only 29.9 per cent of the entire hospital population had a like degree of malnutrition. This same relationship was found in that group which was twenty or more pounds underweight. The schizophrenic patients having 21.1 per cent of their number in this group, the total population of the hospital had only 14.3 per cent classified here.

An attempt was made to correlate the degree of malnutrition in the schizophrenic population and in the entire population of the hospital when divided into categories of various activities and under various types of hospital care. In this study of the degree of activity of these 374 patients, those patients doing arduous or active work were dis-

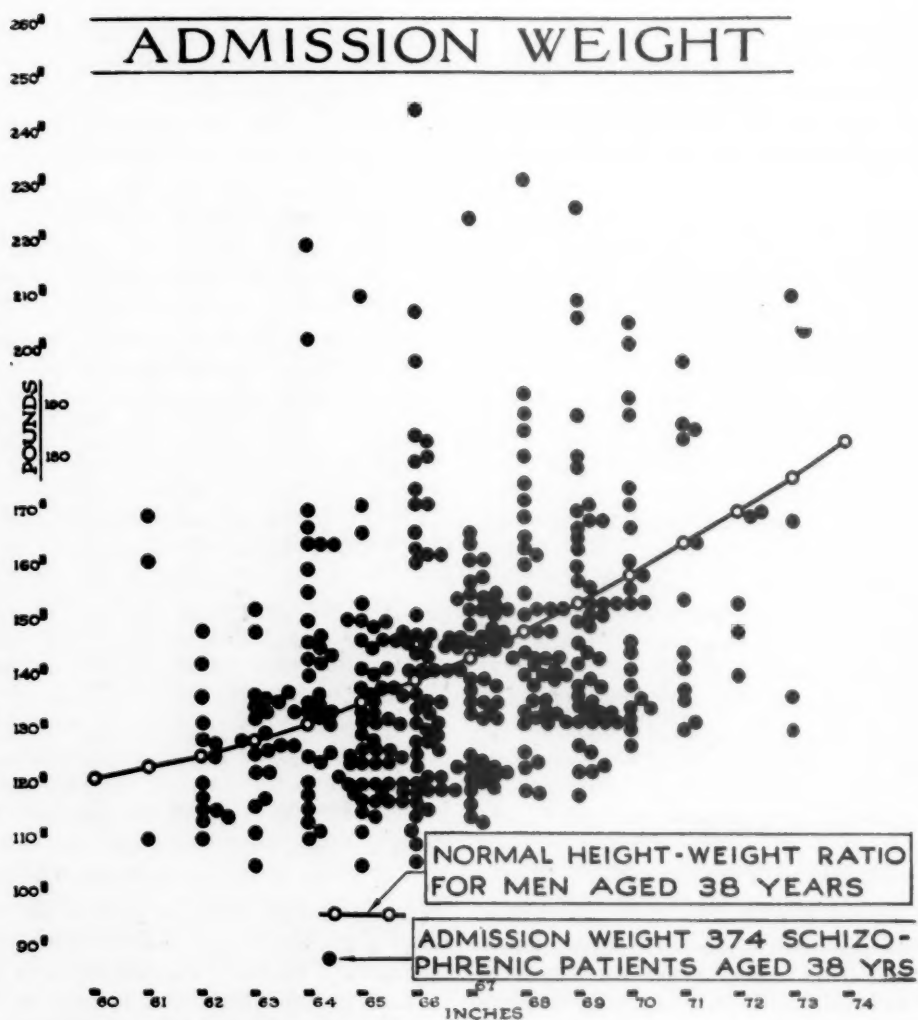


FIG. 2.—The height-weight ratio of 374 schizophrenic males to a normal at time of admission.

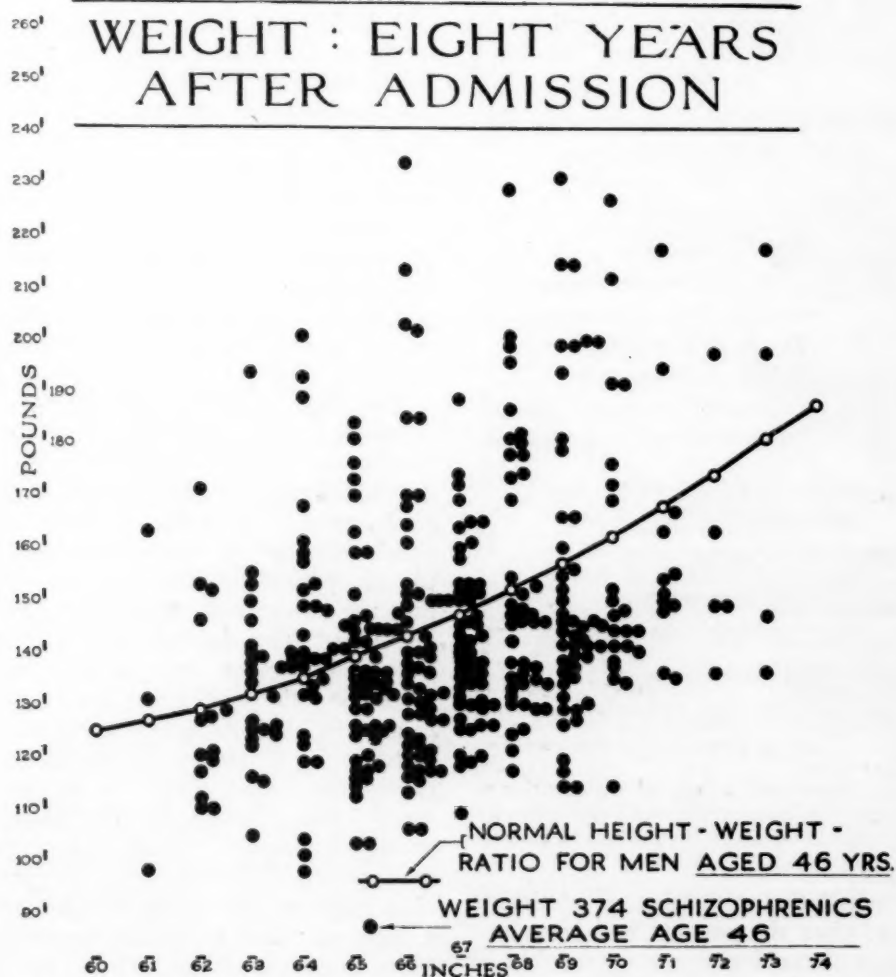


FIG. 3.—The height-weight ratio of 374 schizophrenic males to a normal after eight years institutional care.

nated as "A"; those doing moderately active work as "B"; those doing light work as "C"; and those patients totally idle were designated as "D." Included in these degrees of activities were those patients who were unproductive and these in turn were rated according to the energy expended. In this study of activity it was notable that slightly less malnutrition was found among the schizophrenics than among the entire

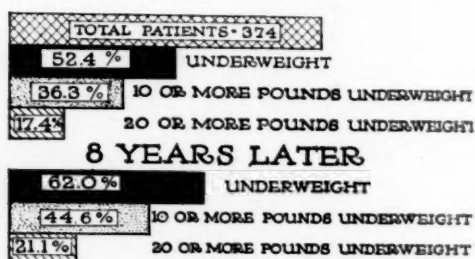
hospital service the patient received. Fig. 6 indicates no such differences in degree of malnutrition as were found when the variations of activity were studied, in fact the differences of degree of malnutrition between the services were strikingly small and surprisingly constant.

Using the mathematical average height of 66½ inches and using the average age of 46 years, the basal caloric requirement was calculated and found to be 1620 calories. "A basal plus 50 per cent diet" would have a caloric equivalent of 2430 calories. This "basal plus 50 per cent diet" was selected as being adequate for an individual engaged in arduous work. A study of the regular hospital diet revealed that approximately 3700 calories per day were served to these patients during this eight year period. A typical weekly menu with caloric values is submitted in Fig. 7.

From the foregoing it would appear that dementia praecox patients at the time of admission have approximately the same degree of malnutrition as that found in the hospital population as a whole. However as the hospitalization of this group of schizophrenic patients continues it would appear that the extent and degree of malnutrition increases. Why do these schizophrenic patients lose weight after being hospitalized while the total population shows a tendency to gain weight? An accurate answer to this question is of course impossible since at present our knowledge of the etiological and many other factors of schizophrenia is grossly inadequate. Sharp and Baganz(2) have shown that despite the administration of a large amount of food (4500 calories) a high per cent of schizophrenic patients failed to gain in weight and that the average gain was less than four pounds over a period of twenty weeks. In studying a similar group of schizophrenics under identical conditions but with the addition of small doses of insulin these patients were found to have an average gain of twenty-seven pounds in twenty weeks.

From these studies and from the everyday experience of psychiatrists in institutions it would appear possible that there is some elementary factor lacking in the digestion, absorption or metabolism of schizophrenic patients.

SCHIZOPHRENIC - PATIENTS ON ADMISSION



ALL PATIENTS ON ADMISSION

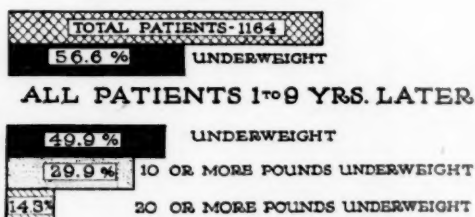


FIG. 4.—Degree and extent of malnutrition in 374 schizophrenics as compared with entire hospital population at time of admission and after treatment.

hospital population at the time of admission. However, after the patients had been hospitalized, malnutrition was more marked in the schizophrenic group than in the entire population in all gradations of activity studied. This increase in degree of malnutrition varied from 2 to 518 per cent as shown in Fig. 5.

When these variations in activity were further correlated with the degree of malnutrition, it was found that there was a marked tendency with only a few exceptions for the malnutrition to increase as the activity of the patient decreased.

An attempt was made to correlate the degree of malnutrition with the types of hos-

Activity	Total No. of patients	Underweight on admission		Underweight after being hospitalized *		Underweight after being hospitalized * and weigh less than on admission	
		No.	Per cent	No.	Per cent	No.	Per cent
"A" ... Schizophrenics	51	25	49	25	49	23	45
All patients	197	107	54.3	92	46.7	44	22.3
"B" ... Schizophrenics	103	51	49.5	62	60.1	51	49.5
All patients	383	224	58.5	202	52.7	86	22.4
"C" ... Schizophrenics	65	36	55.4	44	67.6	36	55.4
All patients	333	187	56.1	171	51.3	69	20.7
"D" ... Schizophrenics	155	81	52.2	96	61.9	88	56.7
All patients	251	138	55	115	45.8	50	20

Activity	Total No. of patients	Underweight after being hospitalized * and lost 10 or more lbs.		10 lbs. or more underweight after being hospitalized *		20 lbs. or more underweight after being hospitalized *	
		No.	Per cent	No.	Per cent	No.	Per cent
"A" ... Schizophrenics	51	9	17.4	23	45	11	21.3
All patients	197	21	10.6	52	26.5	26	13.2
"B" ... Schizophrenics	103	23	22.3	38	36.8	20	19.4
All patients	383	27	7	119	31.1	52	13.5
"C" ... Schizophrenics	65	19	29.2	31	47.6	17	26.1
All patients	333	29	8.7	115	34.5	56	16.8
"D" ... Schizophrenics	155	45	29	75	48.3	31	20
All patients	251	12	4.8	63	25.1	32	12.8

* "After being hospitalized" indicates an eight year period of treatment for the schizophrenic patients and a 1-9 year period for the entire hospital population.

FIG. 5.—Comparison of malnutrition in 374 schizophrenic patients and in entire hospital population. Classified according to degree of Activity.

Service	Total No. of patients	Underweight on admission		Underweight after being hospitalized *		Underweight after being hospitalized * and weigh less than on admission	
		No.	Per cent	No.	Per cent	No.	Per cent
Acute ... Schizophrenics	78	41	52.5	48	61.5	40	51.2
All patients	153	94	61.3	88	57.5	37	24.2
Infirm .. Schizophrenics	58	29	50	42	72.4	35	60.3
All patients	351	200	57	173	49.3	72	20.5
Recon- Schizophrenics	238	127	53.3	141	59.2	125	52.5
struction All patients	660	362	54.8	319	48.4	140	21.2

Service	Total No. of patients	Underweight after being hospitalized * and lost 10 or more lbs.		10 lbs. or more underweight after being hospitalized *		20 lbs. or more underweight after being hospitalized *	
		No.	Per cent	No.	Per cent	No.	Per cent
Acute ... Schizophrenics	78	21	26.9	35	44.8	18	23.08
All patients	153	10	6.5	56	36.6	28	18.4
Infirm .. Schizophrenics	58	19	32.7	29	50	12	20.6
All patients	351	26	7.4	99	28.2	44	12.5
Recon- Schizophrenics	238	54	22.6	102	42.8	49	16.3
struction All patients	660	48	7.3	168	25.5	93	14.1

* "After being hospitalized" indicates an 8 year period of treatment for the schizophrenic patients and a 1-9 year period for the entire hospital population.

FIG. 6.—Comparison of malnutrition in 374 schizophrenic patients and in entire hospital population. Classified according to Service.

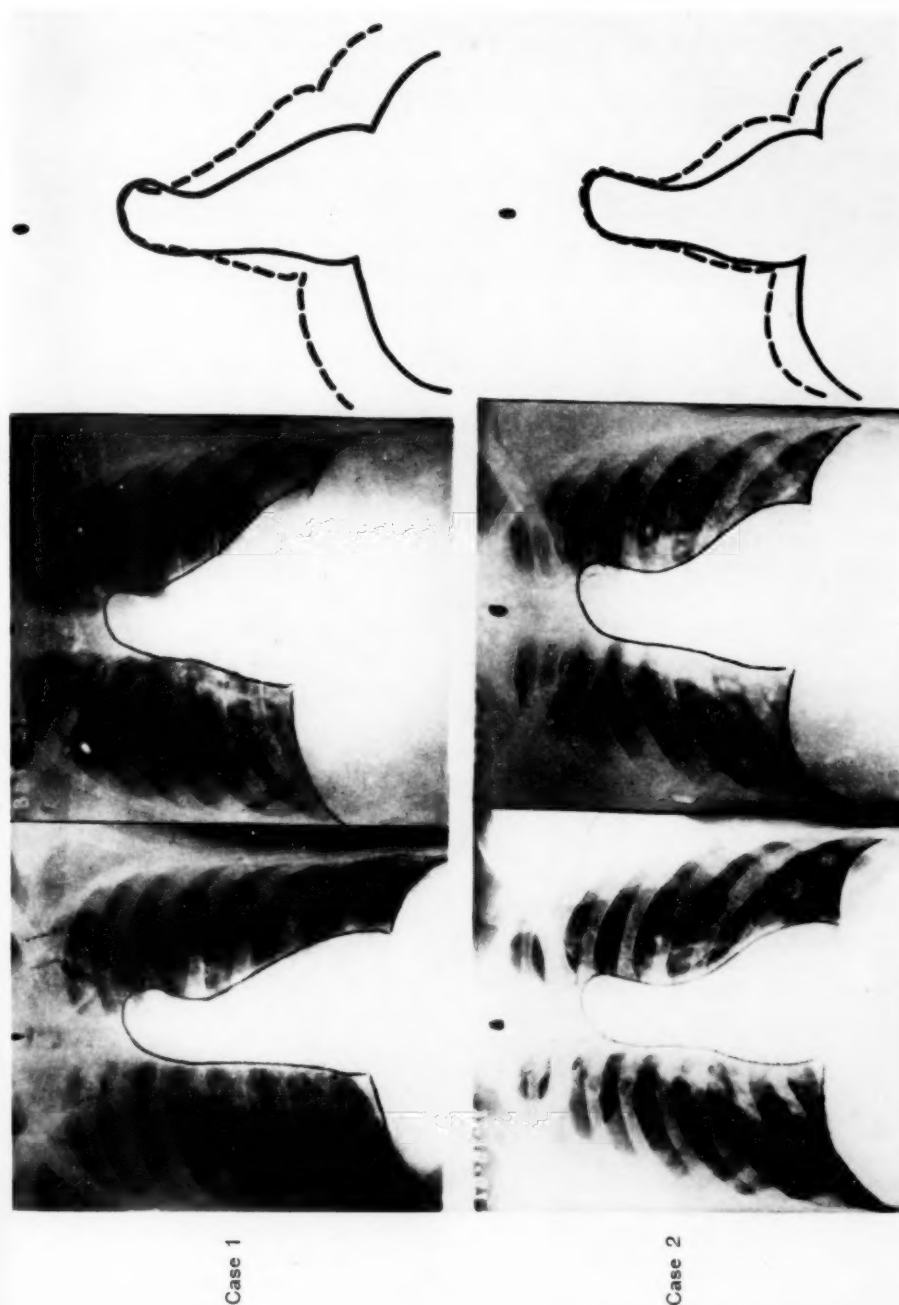


FIG. 8.—Reproduction of teleorontogenograms of two cases: (a) before insulin therapy, (b) after insulin therapy, (c) "a" super-imposed upon "b" with spinous process of first dorsal vertebra at same level. Diaphragm, cardiac outline and spinous process of first dorsal vertebra have been retouched for greater contrast.
(These illustrations are reprinted through the courtesy of the Editor of Annals of Internal Medicine.)

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The long narrow heart shadow as seen on the X-ray film, coupled with the cyanosis and edema of the extremities frequently observed in many schizophrenic patients, has given rise to various concepts regarding the circulatory insufficiency of this group of psychotics. It is a well known fact(3) that one of the major factors directly influencing the cardiac shadow is the height of the diaphragm and this in turn is directly influenced by the state of nutrition among other things. Therefore it would appear logical that since there is such a high degree of malnutrition in chronic schizophrenia this factor may explain the frequent findings of the long narrow cardiac shadow and some of the concepts associated with the so-called "longitudinal heart of the præcox." Fig. 8 shows the cardiac shadows of two cases. Case 1 shows a conspicuous change in the height of the diaphragm; a marked change in the cardiac shadow and there was a concomitant increase in weight following pharmacological shock therapy for schizophrenia. Case 2 revealed similar findings in a patient who did not have shock therapy but who received small doses of insulin for the treatment of malnutrition. This patient also underwent a distinct gain in weight. Neither of these cases had, at any time, clinical evidence of cardiac disorder.

CONCLUSIONS

1. On admission, the degree of malnutrition found in chronic schizophrenic patients is not significantly different from that found in the entire hospital population.
2. While the entire hospital population has little change in the extent of malnutrition following admission there is a significant increase in the extent of malnutrition in

chronic schizophrenic patients after these patients had been hospitalized eight years.

3. The proportion of patients ten or more pounds underweight is approximately 50 per cent greater in the chronic schizophrenics studied than it is in the entire hospital population and the same proportion is found to be true in the number of those schizophrenics twenty or more pounds underweight.

4. It would appear that the more active patients have the lowest extent and degree of malnutrition and as the patients become less active the extent and degree of malnutrition becomes more marked.

5. There appears to be no significant correlation between the degree of malnutrition and the type of hospital service rendered to the patient.

6. The extent and degree of malnutrition apparently exists completely independent of the serving of adequate calories.

7. The degree of malnutrition in chronic schizophrenics may offer an explanation for some of the commonly noted changes in the cardiac shadow frequently described as the "longitudinal heart of the præcox."

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STUDIES ON THE PROGNOSIS IN SCHIZOPHRENIC-LIKE PSYCHOSES IN CHILDREN¹

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From the growing literature on childhood schizophrenia there has been emerging in recent years a clearer concept of what the term implies descriptively, if not psychopathologically and psychophysiologically. Criteria have been set up by a number of investigators (Potter(1), Lutz(2), Bradley(3), Bender(4), Despert(14)) attempting to establish an adequate basis for diagnosis to replace the preexisting confusion which ranged from denial of the existence of the syndrome in childhood to insistence on dividing the group into a number of entities with differences in nomenclature depending upon variation in the symptomatology or age level. Many controversial areas remain to be clarified, such as the relationships between childhood schizophrenia and adult schizophrenia, the significance of organic factors, the recent emphasis on "intensive" treatment, etc. The need is recognized for long term follow-up studies to throw some light on these questions; particularly since the follow-up studies to date have given sometimes conflicting results.

Although the general feeling has been that the prognosis for children who show prepubertal schizophrenia is poor, improvements and complete remissions have been reported (Creak(5), Vogt(6), Cottingham(7)). Ssucharewa and Kogan(8) found that $\frac{1}{3}$ of their cases showed substantial improvement, while another $\frac{1}{3}$ exhibited only moderate improvement. On the other hand Lurie, Teitz and Hertzman(9) and Potter and Klein(10), found that only one individual in each of their series of 10 and 14

cases respectively, was making a tolerable adjustment in the community. Their findings were more consistent with the general opinion prevailing about prognosis. In the cases we are reporting, the outlook appears to be somewhat brighter.

Our series includes 20 children who, at some time before the age of 12, experienced psychotic episodes classifiable as childhood schizophrenia. All of these cases had been studied at the New York State Psychiatric Institute and their symptoms had been evaluated in terms of Potter's(1) criteria for the diagnosis of childhood schizophrenia. These criteria include the important diagnostic points offered by most other investigators, and are:

1. A generalized retraction of interests from the environment.
2. Dereistic thinking, feeling and acting.
3. Disturbances of thought, manifested through blocking, symbolization, condensation, perseveration, incoherence and diminution, sometimes to the extent of mutism.
4. Defect in emotional rapport.
5. Diminution, rigidity and distortion of affect.
6. Alterations of behavior with either an increase of motility, leading to incessant activity, or a diminution of motility, leading to complete immobility or bizarre behavior with a tendency to perseveration or stereotypy.

The cases chosen for follow-up study offered little doubt as to their fitting into this classification, and were neurologically negative as regards evidence of focal organic central nervous system disease, at the time of the original study. The psychotic state represented a deterioration from previously higher levels of adjustment. There were 15 boys and 5 girls, ranging in age from 4 to 12 years. Their periods of hospitalization varied from 4 months to 2 years, averaging 10 months. At the time of our follow-up, a minimum of 4 years and a maximum of 11 years, had elapsed from the time of extended critical survey on the ward, the average being 8 years. The follow-up

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procedures included fairly complete psychiatric and neurologic examinations and, wherever possible, various psychologic techniques, including the Rorschach test. Electroencephalograms were taken on 12 of the 20 cases, the remainder of the group having been entirely uncooperative to the procedure. A social service survey was undertaken when the individual resided in the community. Only one patient, who lived a distance, was not seen personally by the authors. However, this patient was examined by staff members of the Syracuse Psychopathic Hospital and she has also corresponded with us.

The present adjustment levels of our series of children seemed to be classifiable into three main groups, as follows:

- I. Apparently normal adjustment in the community, educationally and socially (4 cases).
- II. Fair to borderline adjustments in the community—this includes fair or good educational adjustment with poor social adjustment (5 cases).
- III. Low grade adjustments which may be further subdivided into three types (usually in institutions):
 - (a) Typical adult schizophrenic reaction types (3 cases).
 - (b) Maintaining the same level as when originally seen, or further deteriorated (5 cases).
 - (c) Reactions as in "b" but in which an organic basis has been established (3 cases).

CASE REPORTS

Group I.—Cases much improved or recovered, including individuals who had their psychotic episodes at ages ranging from 5 to 11.

(a) Melvin was hospitalized at 5, had an acute onset of his illness over a period of 4 months. He presented a picture of fear, anxiety, motor restlessness, negativism, ritualistic movements of his hands, stereotypy, speech disturbances (mutism and echolalia), retraction of interest in his surroundings and marked intellectual retardation. These symptoms gradually improved and after a year of residence under a program of socialization and individual psychotherapy, on the children's ward, he could get along with the group and had only infrequent periods when he was underproductive and preoccupied. At home he was able to maintain his improvement and within another year was back to his former level. Eight years later, at 14, he is beyond his grade at school, has many friends and is apparently a normally integrated personality, concerned with his appearance and possibly over-

neat. He has been able to maintain this level through a series of traumatic emotional experiences including the recent commitment of his mother to hospital with a post traumatic psychosis, and the hospitalization of his brother, also for a psychosis.

(b) Roslyn was 9 at the time of her hospitalization for symptoms including fears, hallucinatory phenomena, bizarre activity and productions, periods of preoccupation and withdrawal, trembling, and suicidal attempts of one month duration. Her acute symptoms lasted about 2 months after admission to the children's ward, and within 6 months had cleared sufficiently for her to be discharged. Nine years later, at 18, she is making an excellent adjustment. She left high school in her senior year to take a job because her earnings were needed. At present she demonstrates cosmetics in a cut-rate drug store and has an active social life. At home she is occasionally in conflict with her favored, intellectually superior sister.

(c) Herbert, who had since infancy been a demanding, aggressive child, was treated at 11 for psychotic behavior of 6 months duration, marked by auditory hallucinations, paranoid expressions, withdrawal, fearfulness and bizarre behavior. He had 2 courses of insulin and was unimproved after the first course which had been interrupted because of convulsions. Following the second course he was much improved and, after discharge, a little more than a year after the institution of treatment, he continued to improve. At present, 4 years after the onset of symptoms, and 2½ years after discharge, he continues his excellent adjustment, showing normal interests in school where he is up to grade, and in friends and sports. His insight and judgment are good. An outstanding characteristic of his present personality makeup, in contrast to his prepsychotic behavior, is a lack of aggressiveness which contributes to his present ability to get along with others.

(d) Gertrude had been exposed to an extremely unhappy home life and dramatic divorce proceedings followed by living in a rigid, unaccepting foster home. By the age of 7 she became increasingly hyperactive, impulsive, sadistic, destructive and showed increasingly poorer judgment. This progressed until at 11 she had to be hospitalized. Her symptoms included bizarre activity, flight of ideas, perseveration, echolalia, echopraxia, constant grimacing and auditory hallucinations. After 6 months in the Psychiatric Institute, during which time she became worse, she was transferred to a state hospital, where she remained for 4½ years. There she showed some improvement after the first year, enough to allow a short-lived trial period with her father in the community. For the next 3 years she maintained a consistent behavior pattern marked by inadequate emotional responses, manneristic stereotyped activity, and definite evidences of delusions and hallucinations, sufficient to corroborate the diagnosis of dementia praecox. Following an attack of scarlet fever, and after puberty had become established, she improved sufficiently to allow placement in a rural home with warm, sympathetic foster parents. There her adjustment

rapidly became more normal. At present, 7 years from the time of her first hospitalization at 11, and 2 years after her discharge at 16, she has an active social life, frequently goes skiing and sleigh riding with a group of her own age and takes a large share in the housekeeping. No sign of her former psychotic symptoms are found now, except possibly for some emotional flattening, though she can be stimulated to give adequate responses to situations. Of course she remains in a relatively protected environment and has not been forced to meet stresses that city living or a work adjustment would involve.

These 4 individuals who improved seem to represent different types of childhood schizophrenia, related possibly to the age level at the time of illness. The 2 children presenting psychoses at 11 and possibly the 9 year old, showed symptoms which resembled clinically a pubertal type of dementia praecox, in contrast to the psychosis in the 5 year old child. The illnesses of the 2 older children ran a more prolonged course before recovery, 2 years and 4½ years respectively. The response of one of these to insulin might be considered an adult type of response. In the other 11 year old child, untreated by shock, improvement coincided roughly with a period of endocrine changes, including the onset of menstruation, a physiological crisis often thought of as a precipitating factor in pubertal psychoses. The onset of the illness was acute in 3 of the 4 cases. The present status of these "recovered" children has been maintained for 2 to 8 years.

Group II.—Patients who, following a psychotic (schizophrenic) period of 6 months to 3 years, have been able to make a fair to borderline adjustment in the community. This group includes children at 2 age levels: 3 at 8-9 and 2 at 12. The 3 children at the 8-9 year level were remarkably alike, exhibiting developmental disturbances and maladjustments since infancy. They showed inferior motility patterns, awkwardness following a delay in motor development, and 2 of the 3 children displayed athetotic movements of the outstretched hands, while the third had bursts of marked motor activity during which he would, at the age of 4, "run around like mad." The onset of their actively psychotic symptoms was insidious, gradually gaining momentum from the age of 4-5. All of them are now able, following a gradual

subsidence of their "schizophrenic" patterns, to continue at home with less disturbing behavior; but they are extremely dependent on over protective mothers. Two of the 3 retain mild obsessive-compulsive phenomena. The 2 boys in this group are feminine in mannerisms, dress and speech, and one has a definitely homosexual drive, one of his rituals being to touch in an unobtrusive way the genitals of men standing near him in the subway. All 3 are making good educational adjustments. Although 2 have not been able to make up the ground lost during hospitalization, they receive average grades in school, while the third is making an exceptional record in high school. The latter, in his spare time, is preoccupied with metaphysical ideas and the fine points of war strategy. Socially they all are failures. They can maintain no contact with their peers and can adjust only on a play level with very young children. Although 2 of the 3 (excluding the boy with homosexual trends) apparently have normal social drives for their age level, they are frustrated because other youngsters consider them "different," or queer.

A case typical of this trio is that of Thomas, an only child, who was a hypertonic baby, born by breech delivery, who had sleep difficulties since birth. Development was delayed, and he did not walk until 2½. Movements of the fingers were first noted at 2. He was fearful, hyperactive, impulsive, destructive and had frequent periods of negativism, sadistic behavior and rages. Habit training was difficult. Motor control was always poor and became a source of frustration when school was started at 5, leading to conflict with other children and the teachers. Gradually, at this point, he began to develop the symptoms which became full blown by 9, and which led to his hospitalization at that time, after 5 years of treatment in a psychiatric clinic. These symptoms included periods of withdrawal from contact with his environment, dissociated ideation with irrelevancy, flight of ideas, diffuse anxiety and fearfulness in addition to bursts of the same typical activity he showed earlier in childhood. The I.Q. ranged at various times from dull normal to average. He quieted somewhat on the ward but improvement was a slow process taking 3 years to reach its present level. Now at 18, 9 years after his hospitalization and 6 years after his reaching a relatively comfortable adjustment, he has developed well physically and is fond of school where he is doing third year high school work. Anxieties and fears are denied. He is anxious to indulge in sports and to have a girl friend with whom he could indulge in sex play. Although he has no friends, he is

friendly with all the storekeepers in the neighborhood and likes to amuse the neighbors' young children. He is fond of discussing classical music, politics and social questions and remembers a number of unimportant, often irrelevant details in these fields. His motility patterns, especially postural reflexes, are still distorted and his copies of Gestalt patterns show configurational disturbances.

The remaining members of Group II, 2 boys of 12, present entirely different pictures. As was noted in the older members of Group I, patterns here also resemble the pubertal or adult types of schizophrenia.

Raymond exhibited his first signs of illness at 11 when he began to show obsessive behavior which tended to withdrawal from contact with others and gradual slowing down of activity and retraction of interests. By 12 he had to be hospitalized. Affect was blunted, ideas were unrelated to each other, perseveration, stereotypy and posturing were prominent features along with general retardation and unproductiveness. The symptomatology was unchanged when he was signed out of the hospital, after 6 months residence, but within a few months at home began to emerge from his shell. This emergence was never complete, however, and at present, at the age of 17, 5 years after hospitalization, he can best be described as "schizoid." Physically he has matured. He attends a vocational high school where he does his work conscientiously, receives average to borderline grades, and is able to carry an N.Y.A. job. He avoids his classmates and teachers and has difficulty with any work that demands oral expression. The I.Q. is in the dull normal range in contrast to his normal level at 9. There is evidence of obsessive ruminations. His judgment is poor and he has no insight into his past difficulties. The picture is now one of an adolescent boy, functioning on an intellectually and socially inferior level.

Murray began to show minor neurotic traits when he started school. At 9 he developed somatic complaints for which no physical basis could be found. At 12, 3 months before admission to the hospital, he suddenly withdrew from all contacts at home and school and within a few weeks was in the midst of a frank psychotic break. On the ward he displayed paranoid ideas, was hallucinating, and appeared to be entirely out of touch with his environment. He showed no conception of time and did not seem to appreciate the meaning of words. After 6 months in the hospital with no improvement, his mother removed him and kept him at home where he has remained for the last 6 years. At 18, he is in the third year of high school, receiving grades of 30 and 40 per cent one term, and grades in the 90's the next. He has no friends and avoids all social contacts. He exhibits periods of temporary improvement so far as activity goes and in ability to get along with his family, sometimes lasting as long as six months, but inevitably he relapses and exhibits many of his original symptoms. At no point does he have

insight. The parents realize the inevitability of hospital placement but live from day to day in hopes of another temporary relief from symptoms.

Like the first 3 members of this group, Raymond seems to have reached a level of functioning, however inadequate, at which he is pegged. The other 12 year old, on the other hand, followed a course marked by relatively short remissions with recurrences of his difficulties. These last 2 cases seem never to be operating on a symptom-free basis, but with a patched up, distorted type of personality integration. The mental scarring is reflected on all levels of their adjustment. In contrast to the first 3 cases in Group II, the onset in these latter 2 cases was relatively acute. None of the cases showed insight, even in their best periods.

Group III A.—Children who are unimproved and now present syndromes typical of adult schizophrenia. Here we consistently find a different symptom picture in the prepuberty period as contrasted with the present pattern. In 2 of the 3 members of the group the onset was at 3 years with recovery from the first attack, but with rapid deterioration following the second episode at 5 and 6 years of age. Both of these children are in institutions for mental defectives.

Marvin, age 6, deteriorated over a period of almost 2 years at the Psychiatric Institute to infantile levels of behavior. At 12, after 4 years in the state school for defectives, he began to respond to stimulation and motivation and relearning, to dress and feed himself and care for his toilet needs. At the same time his symptomatology slowly changed to a silly, incoherent, delusional type until now at 18 he is reacting with a typical adult, dilapidated, hebephrenic behavior. At times he seems to believe that he is a dog, barking, snarling and baring his teeth, walking on all fours, jumping on others and tearing their clothes, and even his own, with his teeth. No contact with him is possible. Rarely he repeats the last word of a question asked him, but that is the limit of his speech. He occasionally hums the same tunes he did when first seen at 6. Periods of hyperactivity persist. Physically he is immature.

Similarly, John, the second in this subgroup, whose rapid regression took place at 6 years of age, had a relative remission at 14, during which he was able to adjust to the Seguin class at the state school, but within 3 months began to show pronounced catatonic features. At 16 he presents the type of catatonic syndrome found most often in adult schizophrenics, with periods of waxy flexibility, posturing, mutism and irritability and at

times requires tube feeding. When he accepts candy he holds it next to his genitals.

The last member of this subgroup, Richard, began to show obsessive-compulsive behavior at 5 following an attack of pertussis. He had numerous fears and tics, insomnia and made buzzing noises extremely annoying to others. He reached a peak of abnormal behavior at 10, with seclusiveness and bizarre ideas. When, at that point, he was studied for 9 months at the Institute, it was felt that he was a case of childhood schizophrenia with hebephrenic features. An encephalogram showed a minimal ventricular dilation on the left side. In a state hospital he was relatively quiet and symptom-free for 4 years. Shortly following his transfer to another state hospital, at 14, he suffered an exacerbation of all his former manifestations with more marked withdrawal from reality, inappropriate affect, diffuse anxiety and scattering of ideas, suggesting a more definite hebephrenic state. This lasted about a year and then subsided leaving him with considerable intellectual deterioration but able to work in the institution on small jobs at 21.

These 3 individuals all developed more adult-type schizophrenic patterns in their behavior and activities after a period of relative freedom from symptoms early in adolescence. The implication inherent in this change is one of growth, and in a sense shows a greater maturity of reaction to the disease process.

In *Group III B* (the 5 children who maintained the same level as when originally seen or deteriorated further) the onset of illness was acute in each case. In 3 of the 5, the symptoms occurred abruptly in early childhood at 3 to 4½ years of age, interrupting normal or even superior growth and development. In a fourth case there was a short-lived episode of mutism and withdrawal at 3½ years, with complete recovery until the age of 10, when a second acute attack resulted in rapid regression and within 18 months he had reached the level which he still, 11 years later, maintains in a state hospital. The last individual in this class had been a shy, "model child" until 11½ years old when, within 6 months, he deteriorated to a low level. Although he is the only one of the group who, at the age of 17, is living in the community, this is only because he has a male nurse in constant attendance and is under continuous sedative treatment, including packs and hydrotherapy.

Even though flashes of mild improvement occur in these individuals, the common de-

nominator is still the little better than vegetative state they are in. None of them, now ranging in age from 10 to 22 years, can fully dress himself; only 2 take care of their personal needs, 4 of the 5 are mute and usually out of contact, and the fifth never talks spontaneously; when he is spoken to, his responses indicate a good deal of confusion and disorientation with marked speech difficulty. Characteristic also of these individuals is the infantile mode of activity, including smearing of feces, preoccupation with saliva, aimless genital manipulation, occasional outbursts of irritability, combativeness and destructiveness (except for one always amiable, tractable child). Two of this group show primitive sucking and grasping reflexes, and with one exception, the postural reflexes are primitive in pattern and marked by a whirling tendency. Otherwise, the entire group shows no other clinical neurological abnormalities. Air encephalograms performed on 3 of the children were all negative as were electroencephalograms (see below). A striking feature of this group was their physical immaturity, none having progressed very much from the time of original study, even in the development of secondary sexual characteristics.

In the last *Sub-group, III C*, we placed 3 children who had made no progress in adjustment since hospitalization, but who, on follow-up study, revealed organic neurological pathology which had not been in evidence at the time of the original studies. At no time from the onset to the present was their course and symptomatology distinguishable from that of the individuals in the preceding group, even in the periods of remission.

Renée, who was observed at the Institute for 2 years, beginning at the age of 7, had a sudden onset of her difficulties at 2½. Shortly after a series of illnesses including pertussis and mumps, she stopped speaking, became markedly hyperactive and destructive. This became progressively worse until a plateau was reached at 12, by which time she was in "perpetual motion," had temper tantrums over trivial things, touched, threw or destroyed everything she could get hold of, was fearful and anxious, had defective speech, masturbated openly, and when finally quieted would be indifferent to everything about her. At 17 she is on the disturbed ward of a state hospital showing little appreciable change in behavior. However, on examination she

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presents stigmata of a postencephalitic state, including some signs of Parkinsonism. She shows a tendency to maintain a hunched posture, a suggestion of propulsion, mask-like facies and at times jerky movements of her arms.

Both Joseph and Jerry had shown similar pictures on entrance to the hospital, including loss of speech, increase of activity, combativeness, fearfulness of other children and activity dictated by distorted ideation. Joseph's difficulty had an acute onset at 3½, while Jerry's symptoms, except speech, had been progressive since birth. Both were neurologically negative when studied and air-encephalograms showed no gross deviations from normal. After discharge Joseph developed "fainting spells" occurring at intervals of a few months to a year and lasting 3-6 hours. He has continued to display all his symptoms. Jerry, too, about 2 months after leaving the hospital had a convulsion, predominantly left-sided, and has continued to have them at irregular intervals since. His symptoms were relieved to the extent that he recovered his speech and is able to attend ungraded class but he is still fearful, irritable, combative, distractible, has flight of ideas, and it is difficult to make contact with him. Severe headaches and dizzy spells are frequent. At 13, 5 years after hospitalization, he shows only "soft" signs neurologically, such as athetoid movements of his hands, over-reaching for objects, awkward gait with exaggerated movements and distorted postural reflexes with the pronator sign, and drifting of the right arms outward, when the head is turned to the left. Joseph at 12, 7 years after he was first seen, is too uncooperative to allow an adequate neurological examination, but that he has definite motility disturbances is quite evident. Electroencephalograms on both youngsters were abnormal, showing evidence perhaps of organic CNS change (see below).

Possibly the individuals in both Groups III B and III C, bankrupt as they are in almost all fields of functioning, can best be understood in terms of the "catastrophic reaction" described by Goldstein (18).

DISCUSSION

It is obvious from the outcome in the cases we have followed that a wide range of adjustments from the childhood schizophrenic process is possible, varying from apparently complete recovery (20 per cent) to almost as complete disintegration of personality (25 per cent). We have come to feel, with Bender (14), that these individuals have shown disturbances in every field of integration, including the vegetative, motor, perceptive, intellectual, emotional and social spheres. In their premorbid personalities, very often, there had existed from infancy

some distortion in one or more of these spheres, and with this pathology as a focus there was a spread with the development of the overwhelming disease process, to include all the other levels. In those in whom this total invasion receded there was still left the preexisting focal defect. Often it was aggravated and sometimes accompanied by milder distortions in the other areas. This is particularly true in the patients in Group II. Those cases on the other hand which recovered sufficiently to fit into Group I had no history of severe disturbances in any of these fields prior to the onset of the psychotic state and were left with only minor defects, where any at all are in evidence. The type and degree of disturbance in these different fields of integration seem on closer scrutiny to have some correlation with prognosis. It might be profitable, therefore, to examine each field individually.

In evaluating the effect of changes in the vegetative sphere the most striking factor that one meets in comparing the members in the 3 groups is that all those who had remained in a seriously deteriorated state, Group III B, were physically infantile even at the present age range of 13 through 22 years. This includes the failure of development of secondary sexual characteristics or no progress beyond the immature level present at the onset of the psychosis. This is in contrast with those who had made any degree of recovery (Groups I and II) and those who had gone on to develop an adult type of schizophrenic psychosis, all of whom had matured physically to age. We could find no definite relationship between Kretschmerian body type, course and outcome of the illness as had Ssucharewa and Kogan (8) who felt that dysplastic and asthenic individuals in their pre-psychotic make-up had a poor prognosis.

Autonomic nervous system function in some of the childhood schizophrenics is distorted. A battery of autonomic tests is being applied at present to a group of schizophrenic children, but final interpretation of the results must wait on the completion of normal standards for comparison. Indications are, however, that schizophrenic children show characteristically a marked variability in response, ranging from normal on one day to

extremely immature patterns on another. However, the most seriously deteriorated patients where testing was possible showed consistent immaturity of reaction in such measures as parotid secretory rate. Thus these measures may be thought of as indicators of levels of adjustment. It is not yet clear whether these changes are secondary phenomena, reflections or resultants of disturbance in physiological balance or whether they are of primary underlying import. Clinically too we can confirm evidences of vegetative disturbances found by Grebalskaja-Albatz(11), including pupillary changes, changes in skin temperature and moisture. If we translate these results showing immaturity or maturity of autonomic response into terms of prognosis we find objective evidence for Ssucharewa's(12) speculation that physiological processes can compensate for the defect caused by the destructive disease process. However, this can only be the case where there is maturity of physiological activity.

Disturbances of motor integration are common, as we have seen. In one group of children the motor disturbances dated from birth and persisted even after a degree of recovery from the distortions in other fields (see Group II). Motility patterns were particularly and persistently abnormal in those cases with organic brain involvement. Postural reflexes (Teicher(13)) used as a measure of pathological motility were not abnormal in those who had made apparent recoveries. However, they remained primitive to a mild or severe degree in most of the members of Group II and in all those who failed to improve. Among the latter the whirling tendency noted by Bender(4) was consistently present.

One of the disturbances in the emotional sphere, which has been postulated as having a bad prognostic significance, is anxiety (Despert(14) and Ssucharewa(12)). We have found this to be true only in those of our cases where the anxiety is associated with resignation and an attempt to hold on to reality by trying desperately to prove this hold to themselves and to others. On the other hand, anxiety associated with a withdrawal, while the personality collects its resources to combat "the disorder which has

distorted all of its inner experiences," would seem to be a much more hopeful sign and is found in 3 of the 4 cases in Group I.

The deviations from normal in the intellectual and perceptual fields, when analyzed from the point of view of the psychological test performances, would also seem to have some prognostic implications. A genuine, although inadequately manifested interest in the environment on the part of the children who later improved (Groups I and II) was indicated also in their willingness to cooperate during the psychometric examination and by their interest in their test achievement. These children were not able to sustain the voluntary attention required or they actively rejected the test situation apparently for fear of failure and not because of indifference. The children who remained unimproved and were placed in Group III did not show any active interest in their test achievement; neither did they display any active negativism but just indifference. Thus there was a marked difference in the degree of active responsiveness to the environment, either positive or negative, between Group III and the other groups.

To summarize those points in the psychometric data which would seem to be of prognostic value, the following criteria may be postulated:

- (A) The prognosis is favorable if the Stanford Binet I.Q. is 70 or above.
- (B) The prognosis is unfavorable if the Stanford Binet I.Q. is below 70.
- (C) The prognosis is unfavorable if the child is consistently mute, cannot carry on a conversation and cannot cooperate on the general intelligence, verbal tests even though it cooperates on the performance tests.

These criteria help to differentiate between our improved and unimproved children: all of the 9 improved cases (Groups I and II) had Stanford Binet I.Q.'s above 70; one of the unimproved had an I.Q. above 70 but 5 had I.Q.'s below 70; the remaining 5 of the 11 unimproved (Group III) were mute. However, since the total number of cases is only 20, some doubt concerning the reliability of the prognostic criteria remains.

A Stanford Binet I.Q. is acceptable as an element in prognostic evaluation if the child's cooperation is satisfactory and the examination is completed. Needless to say, no as-

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sumption is made that the obtained I.Q. is a valid indicator of the child's initial or highest potential intelligence. It appears as if the schizophrenic child with a good prognosis is not disturbed intellectually to such a degree that its Stanford Binet I.Q. falls below 70, providing of course that the premorbid I.Q. exceeds this figure. Apparently "psychoses occur in persons of all mental levels, but perhaps more commonly in persons of somewhat inferior intelligence" (Brody (22)). In other words, the resistance to the schizophrenic disease process seems to have been more successful when the child's I.Q. remained above 70. The psychometric results obtained during a psychosis cannot be considered as valid measures of the prepsychotic intellectual level although they frequently indicate the child's level of intellectual functioning for many years after the onset of the psychosis (Piotrowski(20)). None of our children seemed able to do their best during the psychometric examination. The Stanford Binet records of our children—except of the mute ones who could not cooperate—show, without exception, the "objective signs of invalidity" (Piotrowski (21)). This is true of both the improved and the unimproved children's records which, as was anticipated, implies that the "objective signs of invalidity" do not discriminate between the reversible and the irreversible Stanford Binet deviation from the initial, pre-morbid intellectual level.

The psychometric pattern, more exactly the relation between the verbal test and the performance test scores, is not without interest and can be used as a secondary prognostic criterion, strengthening the prognostic impression derived from the primary, more discriminating criteria (A), (B) and (C). Only 2 of the 9 improved cases received lower scores on the performance than on the Stanford Binet tests, while only one of the 6 non-mute unimproved cases received a higher score on the performance than on the Stanford Binet tests. Two unimproved and 2 improved cases obtained the same scores on both the verbal and the non-verbal tests, *i. e.*, the difference between the scores was not greater than one year. The performance tests used were the Merrill-Palmer, the Arthur and the Pintner Paterson. The

significance of the discrepancy between the verbal, general intelligence and the performance tests, including the Goodenough, has long been recognized (Brody(22)). Schizophrenic children are only another instance of the validity of the general principle that marked intellectual inefficiency is indicated if the performance tests score is one or more years lower than the general intelligence test score.

It is now evident from the follow-up data that those children who were able and willing to cooperate during the Rorschach personality examination have improved; those unable or unwilling to cooperate remained unimproved. Of course, failure to give interpretations of the Rorschach cards cannot be taken as an unfavorable prognostic sign because children are known to refuse to interpret inkblots for a variety of reasons. It must be added, however, that the previous conclusions based on the Rorschach findings in schizophrenic children (Piotrowski(20)), although still found to be reliable, apply only to schizophrenic children with a good prognosis. There was no opportunity to repeat the Rorschach examination in all cases; the number of records is too small to permit any reliable conclusions concerning the change in personality as they might be revealed by the Rorschach findings. Two of the unimproved patients (in Group III A) cooperated on the Rorschach during the follow-up; their Rorschach records do not differ from records of other adolescent or adult schizophrenics.

The electroencephalograms bore no definite relationship to the character or severity of the clinical states. However, where gross organic involvement of the brain was demonstrated by clinical and air encephalographic examinations, consistent associated abnormalities were noted in the electroencephalograms. Two members of Group I, who had made better adjustments than the rest, had abnormal or borderline normal electrocortical patterns, including occasional bursts of serial 3-5 cps waves, more marked on hyperventilation, associated with high incidence, well organized alpha activity. In Group II there was usually a diffuse type of abnormal electrocortical activity of mild to moderate severity and marked by irregularities in fre-

quency and wave forms. One case had some asynchronous activity with more beta waves on the left than on the right. In Murray, who showed frequent relapses, the pattern was one of well organized alpha activity occurring in irregular bursts of irregular length much like the type found in hallucinating adult schizophrenics. In all the individuals in Group III B, maintaining deteriorated levels, there was no sign of definitely abnormal electrocortical activity. Characteristic of most of the records in this group was an almost continuous high amplitude alpha rhythm over all regions. This is also often seen in advanced deteriorated adult schizophrenics with marked affective blunting, and in some mental defectives. In the organic cases, with convulsive phenomena, evidence of abnormality in the EEG included complete disorganization of activity with marked irregularity of pattern and random slow waves. In the case of Jerry the slow waves were more marked on the right than on the left and were chiefly precentral, parietal and occipital in distribution.

The occurrence, in the presence of demonstrable CNS disease, of symptoms and personality changes identical with those characteristic of childhood schizophrenia, points to the schizophrenic syndrome in children as being non-specific. It is this non-specificity which has led many to postulate that dementia infantilis, dementia praecocissima, etc., are not varieties of childhood schizophrenia because they have found neuropathological changes in their cases. Schilder(15) takes the middle road, coming to the conclusion that "pictures which resemble schizophrenia in childhood are very often not schizophrenic but organic." Bradley(3) does not make the two conditions mutually exclusive when he says "a great deal of evidence is available that certain other disorders may co-exist with schizophrenia, some of which may be accompanied by physical signs which should not be allowed to cloud the picture." He includes in these epilepsy, mental deficiency and organic brain damage. To obviate this disagreement we might use the formulation suggested by Bromberg(16) and Kallmann(17), that of "true" or "genuine" childhood schizophrenia and "symptomatic"

schizophrenia in childhood. Theoretically when certain levels in the brain structure are attacked by some process, as yet unknown (possibly organic in nature), there is obtained a picture of "true" childhood schizophrenia. It is possible that when the same levels in the brain are affected by an organic process, the nature of which we can recognize, it results in what is known as "symptomatic" schizophrenia although the clinical picture is the same.

When we try to trace the relationship between age, type of onset and outcome, only one fact stands out. Four out of 5 of those children who remained in an advanced deteriorated condition had an acute onset early in life (3-5 years of age). This is in accord with similar observations (Lutz(2), Grebalskaja-Albatz(11)) except that in this series acute onset in itself had no prognostic significance (note the acute onset in 3 of the 4 children who made the best recoveries—one, in fact, had his first symptoms at 5). Acute onset at an early age was also noted in 2 of the 3 cases showing adult schizophrenic symptoms. These cases fitted the criteria for Heller's disease (relation between dementia infantilis, childhood schizophrenia and adult schizophrenia?).

The insidious type ended, in our cases, in 1 out of 4 excellent adjustments, 4 out of 5 borderline community adjustments, and in 2 of the 3 cases showing adult schizophrenic symptoms. Age in itself, except as above, had no apparent relationship to prognosis.

With the exception of 2 cases, those we are reporting were studied before the current shock therapy methods were available. These 2 cases were treated with insulin; one recovered following his second course and the other was unimproved. Recoveries or remissions showed no definite correlation with any type of treatment, direct or indirect, although the relation between direct psychotherapy or environmental change in individual cases seems evident. In half the cases found to be doing best on follow-up, recovery or remission was apparently spontaneous, in one case 4½ years after the height of the psychosis was reached. Not one of the "recovered" patients had insight into former symptoms.

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We have attempted in this paper to sketch a somewhat longitudinal picture of what happens in childhood schizophrenia. This is still not the final picture and these studies will be carried further.

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DISCUSSION

LEO KANNER, M. D. (Baltimore).—This carefully prepared study carries us a considerable step farther in our knowledge of childhood schizophrenia. The cases were well chosen. This in itself is a highly significant prerequisite in any such investigation. Much too often the abundantly increasing collection of cases is cluttered with descriptions which have little relation to any, even approximately fitting diagnostic criteria. The authors of this presentation have not only sifted their material with the necessary caution but, at least in the title of the paper, have indicated that they do not feel too secure in drawing close analogies between childhood and adult schizophrenia. Some of us will even find it rather difficult to refer any of the cases just reported to any of the particular classical pictures of childhood schizophrenia. I doubt very much that the name of Heller and his dementia infantilis could be invoked with regard to any one of the cases in Group III A, as the authors have done. But this, I realize, is a relatively unimportant point, since it is directed more toward the matter of terminological subgrouping than toward the intrinsic merit and aim of the study. The main feature remains that, in contrast to some of the

previous follow-up investigations, this one rests on the safe premises of the selection of diagnostically non-controversial cases.

It is heartening to learn that, at least for the duration of the follow-up interval of between 4 and 11 years, as many as 21 per cent of the patients have shown a remarkable readjustment in all spheres. This is a much brighter picture than has been hitherto assumed to exist. I have myself come upon a number of children whose difficulties very early in life gave the impression of schizophrenic-like disorder, with very marked disturbance of affective contact, anxiety, and obsessive-compulsive behavior. In the course of years, they were able to establish a workable relationship to people, the anxiety faded away, and varying degrees of obsessiveness remained as the chief obstacle to smooth adjustment. All of these children started out with every evidence of dire prognosis, ranging from the assumption of profound feeble-mindedness to the prospect of a Heller type of deterioration.

The authors have rightly availed themselves of the advantages of some of the modern criteria for evaluating background and progress, such as electroencephalography and the Rorschach tests. The

question of the value of shock-therapy still remains unanswered.

The authors deserve commendation for this painstaking and careful piece of work. I hope that they will be able to carry out their promise of further investigation.

HENRY B. ELKIND, M. D. (Boston).—A prognostic study from a statistical standpoint of a medical condition requires among other things that that condition should be well understood, that there should be little error in diagnosis, that outcomes should be readily categorized, and that the number of cases be large enough to provide significant conclusions.

Taking up the last requirement first, it should be borne in mind that large samples may not always be available where rare medical conditions are concerned. Schizophrenic-like psychoses in children are relatively rare and the sample studied by the authors is in a sense a large sample. Also their cases have been exposed to careful intensive study by competent persons and in a single institution highly organized for research. This makes this sample, although small, a valuable one for the purpose of prognostic study. The authors also have been careful to compare their sample with other samples of similar cases, which is extremely necessary where small samples are involved. This study is additionally valuable in that it represents a follow-up study of anywhere from four to eleven years of all the cases studied.

As to the first requirement, that the condition be well understood, the authors themselves recognize that in the present state of knowledge of schizophrenia and schizophrenic-like psychoses, there is considerable lack of understanding or information as to the essential nature of this group of psychoses.

As to the second requirement, that there be little error in diagnosis, the authors have gone to considerable trouble to see to it that their cases fell within the category of schizophrenia and schizophrenic-like psychoses. But I question whether psychiatrists can feel certain about this at the present time. The authors do not feel too sure.

The third requirement which a statistical prognostic study insists on is clarity as to outcome categories. In the present study there is found a considerable haziness as to the boundaries of these categories, as, for instance, between recovery, improvement and unimprovement. The paper con-

tains numerous vague statements as to the limits of these categories. For instance, in their Group I, where they have placed their cases which to all practical purposes have recovered, they are not sure that 2 of the 4 cases may not be manifesting remissions at the time they classified the cases.

The electroencephalographic studies seem to be somewhat helpful, although unfortunately only about 75 per cent of these had such studies. In the recovered group, these seem to suggest in two cases, that the psychotic disturbance may be a transitory condition at peripheral levels rather than at deep levels.

No definite prognostic criterion, except possibly one, seems to have developed definitely out of their study to my mind. Even such items as onset and type of onset do not seem to have any specific significance as to prognosis. There seems, however, to be one established criterion: that the more serious and persistent the disturbances in the personality segments of the child during the prepsychotic period, the more ominous is the psychosis which ensues. Of course, this criterion is rather difficult to establish in very young children and it did not apply in every single case. But to my mind it seems to have been present in most of the cases and has definite prognostic value. It is interesting that the electroencephalographic studies suggest that the schizophrenic syndromes in these children are of a non-specific character. This leaves one feeling that the cases studied in this paper may represent a heterogeneous group of psychoses, particularly if one insists on using *causation* as a necessary criterion for classification. One might question from nosological considerations the inclusion of those three cases in Group III where the electroencephalographic curves indicate definite organic disease of the brain. In addition, one has to bear in mind, in regard to these curves, that one is never sure, outside of the organic cases, whether the non-specific organic conditions which they suggest are causes or effects of the fundamental psychotic disease. In conclusion, I should like to offer my appreciation of the authors' effort to traverse and investigate a very difficult field and I wish to congratulate them on their conservative attitude in regard to their findings and on their enthusiasm which impels them to make further studies. I am sure that when they have gone on much further they will undoubtedly bring order out of chaos in this most interesting field.

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PSYCHOPATHOLOGY OF AGING¹

O. DIETHELM, M. D. AND F. V. ROCKWELL, M. D.

New York, N. Y.

Because of the great progress in keeping people in good health and in treating successfully many previously fatal illnesses, the average life span has been considerably prolonged. The population over the age of 50 is increasing steadily and the psychiatrist is therefore confronted with a large group of aging people with problems characteristic of their age. Their psychobiological and psychopathological reactions are not due to senile changes. Minor psychopathological reactions as well as full-fledged psychoses bring these patients to the physician. In studying and treating them, one must consider the situation of aging as well as the individual reaction to it.

For practical reasons, we considered in this study all the patients over 45 who have been admitted to the Payne Whitney Psychiatric Clinic since January 1, 1936. One hundred ten such cases were studied in detail, and to this material was added information obtained from a group of carefully studied ambulatory patients. Patients suffering from cerebral arteriosclerosis and other organic brain disorders were excluded. To present this extensive material with clarity in a short time, statistics have been omitted, and the discussion limited to fundamental considerations of the problems characteristic of the group studied.

The analysis of dynamic factors demonstrates that some patients suddenly become aware of aging. In the physical field, baldness or the graying of their hair, skin changes, teeth decay, menopause, decrease of general strength and energy may be the disturbing features. Social changes brought about by the death of friends and relatives within one's age group, the awareness of aging in acquaintances one has not seen for

years, and difficulty in obtaining new positions are other factors. Gradual changes may be obvious to others in the environment but not to the individual who will be confronted with the attitudes and actions of others which may become disquieting and bewildering. The individual's reaction depends on his own and on society's reaction to aging. The outstanding dynamic factor in both major and minor psychopathological reactions of the patients studied is insecurity, with confidence shaken in one's physical and personality fitness and in one's ability to deal successfully with socio-economic changes. Insecurity is accompanied by anxiety. The resulting need for greater security leads to protective attitudes, to a readiness to defend what one has obtained, and to caution and indecision. The successful solution is re-orientation to oneself and to life resulting in the development of renewed and stable security.

The outstanding psychopathological reactions, which are observed in the most varying degrees, are anxiety, depressive and paranoid reactions. Anxiety may be expressed in mild insecurity feelings, anxiety symptoms, agitation, anxiety depression with fear and panic phases, depressions with markedly limited activity and "frozen affect" (the melancholia attonita of the older authors). Depression is characterized by feelings of hopelessness, futility or humiliation. Paranoid attempts at self-assertion, with their involved dynamic factors, lead to transient suspicions as well as to systematized delusions of persecutory, erotomanic, hypochondriacal, and jealousy types. Other psychopathologic reactions, which may complicate the picture or appear separately, are apathy due to hopelessness, narrowed interest or defeat; aversion due to humiliated pride, suspicion and unbending personality make-up; and rut-formation due to hopelessness, narrowed interests, aversion or paranoid self-defense.

¹ Read at the ninety-eighth annual meeting of The American Psychiatric Association, Boston, Massachusetts, May 18-21, 1942.

From The New York Hospital and the Department of Psychiatry, Cornell University Medical College, New York.

The dynamic factors may be clear but not acceptable to the individual, or they may be unclear. Then again, the individual may not be aware of their presence at all. The previously outlined reactions to aging contain many dynamic factors of which the patient is more or less conscious. Sexual factors may be unclear or bewildering to some patients whereas others may be entirely unaware of certain sexual strivings. Life philosophy, especially with regard to the flow of time and to the dynamic changes in the outer world, is of importance. There are crises of aging with which an individual may be confronted and which may attack his special sensitivity and insecurity. The kind of reaction depends on the personality which one has developed from infancy through adult life. Many patients have a definite expectancy of involutional difficulties. This expectancy is due to various dynamic factors and is probably comparable to the expectancy neuroses (Erwartungsneurose) of younger life periods. In other patients, neurotic defenses adequate previously prove to be insufficient for difficulties in the aging period. We found these neurotic defenses frequently expressed in rigidity of personality and various other definite personality reactions of less obvious nature. Then again, certain trends and strivings in an unbending personality, not, however, psychopathological, may lead to failures. It is this latter group which has been singled out as predisposing to involutional melancholia (Titley). There is no proof that constitutional factors cause any of the psychopathological reactions of aging, but there are many indications that individual personalities may react psychopathologically to life situations. Some of the heredity studies, especially in the fields of involutional melancholia and manic-depressive illnesses, point to a possible inherited factor (Dreyfus, Doty).

A systematic study reveals the interrelationship of physical and personality functions in the formation of some of the symptoms. A frequent symptom is a marked thinking disorder which leads to confusion, bewilderment and perplexity. In some patients, the difficulty in orienting themselves to perplexing life situations may play a rôle. More important, however, is the combination

of depressive thinking disorder, of anxiety, and of psychobiological aging factors. Anxiety affects active attention and concentration and causes subjective retention difficulties which we were able to confirm objectively through special experiments. Psychologists have demonstrated diminished active attention and concentration as aging factors (Miles). The combination of these factors leads to marked thinking disorders. Another symptom which combines depressive and aging factors is the marked lack of visualization of which some patients complain. When such a patient cannot visualize a relative's face shortly after a visit, he will experience anxiety which will increase his thinking difficulties.

The outstanding emotional feature is marked anxiety which in unbending and self-assertive personalities, especially when aversion is present, may express itself in fretfulness and peevishness. General fear or fear in connection with delusions (especially fear of insanity and delusions of doom) are frequent and can be explained by the special life situations. Moods seem to persist longer than in younger patients and may appear in repeated attacks, especially the reaction of helplessness and futility. Resentment colors many depressive reactions and leads readily to suspiciousness, especially when aversion occurs. Some of these reactions are related to paranoid projections while others seem to be entirely on a conscious level. Apathy, which occurs frequently, is an involved psychopathological reaction which has been little studied. In our patients, apathy was not related to the autistic withdrawal apathy of schizophrenic patients but explainable by the narrowing of interests, persistence of dominant interests, or futility feelings. It might also be stressed here that we never observed negativism although there was frequent aversive behavior (Diethelm). Depersonalization seems to be explained by emotional numbing and not by the expression of unconscious dynamic factors. Unconscious strivings were well recognizable in the fear of insanity; *i. e.*, doing what had been suppressed or unconsciously desired. Stirred-up sexual desires, among them frequently perversions or desire for revenge in the setting of resentment, caused patients to imitate the

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noises or other behavior of animals. Lasting deterioration of behavior was rare and explained by apathy or the progressive development of cerebral arteriosclerosis.

The inability to live up to high standards leads to guilt and aversion reactions. On the whole, projections in the form of hallucinations and delusions occur readily in the setting of insecurity, guilt, anxiety and depression. Obsessive-compulsive features are frequently observed in both mild and marked depressions, especially with sexual upheavals. In many persons, interest in religion becomes intensified; in others help is sought in turning to cults. These religious and philosophic needs are found in this age period but are not related to a similar psychopathological phenomenon in young schizophrenics.

It is to be expected that hypochondriacal concerns and delusions occur frequently in this period of general body insecurity. Exaggerated and often fantastic delusions are not explained by intellectual decline but by marked anxiety and special dynamic factors. Body over-concern and marked anxiety are expressed in complaints of head sensations, fatigue, serious disorders of eyes, teeth or skin, and inability to eat or defecate. Due to general anxiety or catathymic factors, these complaints may reach varying degrees of distortion. Endocrinologic studies have not clarified sufficiently the rôle of endocrinologic factors in the psychopathology of menopause. From careful investigation, it has become clear that the only symptoms which might be attributed to endocrinologic factors are those of anxiety (Ripley). It is quite possible that most of this anxiety is due to the expectancy of physical and psychopathological symptoms. Furthermore, sexual factors seem to play a rôle in some of the patients. In other cases, menopause seems to be one of several factors causing a psychopathological reaction. It is interesting to note that sexual desires which have been under control or repressed during adult life seem to become stirred up and threaten security in many people during their fifth decade. Homosexual desires become disturbing and frequently play an important rôle in paranoid and panic reactions. Desire for promiscuity and sexual adventures may be disquieting (Deutsch). In other individuals,

there become prominent repressed anal-sadistic strivings which may express themselves frankly in a displacement of sexual interest to the anal region and in mildly sadistic love-play or may lead primarily to that personality reaction which one connects with repressed anal-sadistic strivings (Abraham). One should, however, keep in mind that a need to save, or even hoarding, may be the reaction to the threats of material security in the aging period. It should be stated that all the patients who presented sexual psychopathology had shown a more or less marked degree of it during adult life. This statement did not hold true for the ambulatory patients who suffered from minor psychopathological disorders. In this latter group, sexual tendencies which were either accepted or controlled by the individual and which were not of pathological intensity might increase in intensity in the fifth decade, becoming a source of annoyance or worry.

On growing older, a person has an increased need for self-dependence which can result in a depression causing great anxiety and fear, or self-assertive paranoid or aversive reactions. On the other hand, persons who have lacked satisfactory self-dependence may suffer a decrease and become entirely dependent on others, especially their mates or their children. Increased or decreased self-reliance is accompanied by corresponding emotional reactions. It may also happen that depression or anxiety is the primary cause for the changes in self-confidence. Suspiciousness is frequently due to guilt or to inadequacy, both reactions being increased by the socio-economic insecurity. It is interesting to note how frequently these reactions are precipitated by changes in work (including promotion and demotion) or living conditions (*e. g.*, moving to another home or community after years of stability).

The most striking change in the personality organization is the increasing lack of plasticity and resulting unbending and rigid attitudes. It is possible that this change may lead to more satisfactory stability in certain types of psychopathic personalities. More frequently, rigidity leads to conflicts which the most plastic person can avoid by adjusting to the inevitable or by modifying strivings or goals. Other sequences of lack

of plasticity may be the lengthening of recurrent illnesses which should be benign, the difficulty in accepting treatment, and the increased suicidal dangers. In contrast to claims in literature, hysterical reactions were infrequent in our patients. When they did occur, we dealt with exaggerations of previous hysterical patterns. Most of the hysterical symptoms which one finds described in literature in the patients of this age period are dramatic emotional reactions, especially fear and anxiety, and not of the dissociative-dysmnestic type. It is not to be expected that these psychopathological reactions can occur in a well-integrated person as late as the fifth decade except when the personality becomes disturbed through cortical damage (usually cerebral arteriosclerosis, luetic changes or brain tumor). For the same reasons, the dissociative schizophrenic illness is not expected to start so late, except in connection with toxic or neurogenic factors, or as an exacerbation of an old schizophrenic illness. All the so-called late schizophrenic illnesses which the authors had an opportunity to study belonged to one of these groups. It is said that manic excitements are rare in this age group whereas depressions are frequent. Recent studies (Doty) force one to modify this statement somewhat. Most of the manic excitements which we studied showed a strong component of anxiety and frequently underlying depression. Erotic features were usually marked as well as a desire to be youthful. For many years these patients had paid much attention to their personal appearance.

In a consideration of the psychopathology of aging, one has to guard against being too much interested in patients who have to enter a psychiatric hospital and overlooking the minor psychopathological reactions which can be observed in general practice. In addition to the experience which was obtained in the psychiatric in-patient department, material was included which was gathered by one of the authors (Diethelm) in consultation practice in the general hospital and in the study of selected ambulatory patients who underwent prolonged treatment with distributive analysis.

In summary it may be said that in this group of late-life reactions, dynamic factors

and symptomatology can be understood in terms of the attitude of society to aging, the individual's personality development and the psychobiology of the aging period. Recurrent affective disorders, psychoneurotic and psychopathic reactions, as might be expected, are correspondingly modified as the individual passes into the aging period. We have avoided using the term "involutional melancholia" because the historical implications of the term are no longer considered valid. In many publications the factor of cerebral arteriosclerosis in the psychopathology of patients of the so-called involutional period has not been sufficiently considered. The rôle of the personality development has been discussed. Its importance is illustrated by our consistent findings that paranoic constitutions develop paranoid reactions, compulsive character disorders become exaggerated, sexually maladjusted persons show sexual psychopathology. Many other examples have been indicated in this presentation. Any attempt to force into one category the "prepsychotic personality" of the person suffering from one of the psychopathological disorders of the aging period leads to over-simplification and fails to take into account the broader aspects of the problem.

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THE TREATMENT OF INVOLUTIONAL PSYCHOSES WITH DIETHYL STILBESTROL¹

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In the group of involutional psychoses usually are classified those depressions occurring in middle life and later years without evidence of organic intellectual defects or without a history of previous depression. The symptoms manifested are those of agitation, uneasiness, insomnia or self-condemnatory trends. In this type of psychosis are also included those cases who during the involutional period and without any previous indication of paranoid reactions show transitory or prolonged paranoid trends with delusions of persecution, suspicion and misinterpretation (1).

However, in females, involutional psychoses may also be regarded as mental disorders which occur coincident with, or soon after the phenomenon called the menopause. Since the female menopause is associated with a cessation or diminution of ovarian function (2) and hence the lack of production of ovarian hormones, it is logical to determine the effect of replacing those hormones in patients who have involutional psychoses. We are reporting here observations made during a period of two years on the effect of large doses of estrogens in 60 women with involutional mental disorders. Forty-five of these patients received diethyl stilbestrol; 15 were given estradiol benzoate.

METHOD OF TREATMENT

Estrogenic preparations were given for one to two months. During this period the mental status of the patient was re-evaluated at frequent intervals. Unless further treatment was indicated, the estrogens were then gradually withdrawn.

¹ Read at the ninety-eighth annual meeting of The American Psychiatric Association, Boston, Massachusetts, May 18-21, 1942.

From the Department of Psychiatry, Syracuse University College of Medicine, and the Syracuse Psychopathic Hospital, Dr. Harry A. Steckel, Director.

Diethyl stilbestrol (estrobene)² was administered orally in 1 mg. capsules. The first week the patient received 4 mg. daily; the next week 3 mg. daily; and thereafter 2 mg. daily for the duration of the treatment. Alpha estradiol benzoate in sesame oil (progynon-B)² was injected intramuscularly. Each cubic centimeter of this preparation contained 1.66 mg. (100,000 international units) of alpha estradiol. The first week the patient received 1.66 mg. four times; the second week 1.66 mg. three times; and thereafter 1.66 mg. twice weekly for the remainder of the treatment period.

The estrogen dosage employed was sufficient to alter some of the pathologic changes resulting from the cessation of ovarian function, and hence was adequate from at least that point of view. Hot flushes when present were usually eliminated, indicating that sufficient estrogen was given to prevent the appearance of the manifestations of excessive production of pituitary gonadotropic hormones.

Endometrial biopsies were performed at weekly intervals in 9 of the patients. Prior to treatment the sections showed either an atrophic endometrium or very slight evidence of estrogen action. By the end of the first week of treatment, all of the biopsy specimens showed a marked estrogen effect with a proliferative endometrium. At the end of 4 or 5 weeks of treatment, the sections showed later proliferative, and sometimes very hyperplastic endometrium. The endometrium of these patients, therefore, was restored to a state indistinguishable from that found in the estrogen phase of the premenopausal endometrial cycle. In 35 cases sufficient estrogen was given to induce bleed-

² Progynon-B was supplied through the courtesy of the Schering Corporation, Bloomfield, New Jersey. Estrobene was supplied through the courtesy of the Ayerst, McKenna and Harrison Company, Rouses Point, New York.

ing from the hyperplastic endometrium (that is, estrogen-induced metropathia hemorrhagica). This manifestation can be controlled by the temporary withdrawal of the estrogen, or by the administration of a short course of progesterone with subsequent shedding of the hyperplastic endometrium. In those patients in whom uterine hemorrhage did not occur spontaneously, the cessation of the estrogenic therapy was followed after a week or so by estrogen-withdrawal bleeding. These observations were interpreted as indicating that sufficient estrogen had been given to restore the endometrium to a state where it functioned as it did prior to the menopause.

CASE MATERIAL

In a previous communication, Brew and Davidoff (3) have subdivided the various types of involutional states on a prognostic basis. This classification was followed in the present report and is briefly summarized as follows:

Group I. The Involutional Syndrome Without Psychosis.—In this group are found the individuals who manifest to a greater or lesser degree those temporary physiologic and psychologic manifestations of estrogenic deficiency that constitute the normal menopausal symptomatology (4, 5, 6). The effect of estrogenic therapy in this group is well known. This type of case is not considered in the present communication.

Group II. The Involutional Psychoses.
Subgroup A. The Simple or Mild Type.—In this subdivision are placed those patients with more than transitory depressed (7) and agitated states which are apparently caused by the estrogenic deficiency component of the climacterium. In general, only a quantitative difference exists between the psychotic patients of this subgroup and the non-psychotic individuals of group I. The psychogenic and the personality factors do not appear as important in these patients as in other cases classified as having involutional psychoses. This subgroup, therefore, may be considered as manifesting a psychosis due mainly to an endocrine dyscrasia (estrogenic deficiency).

Subgroup B. The Moderate or Mixed Type.—In this subdivision are found those

patients whose symptoms appear to be precipitated to a large extent by the climacterium, but a constellation of other psychogenic or organic factors (including somatic, autonomic nervous system and other endocrine influences) is usually present. These may be associated with the onset of the menopause or may be independent of it. It may be difficult to decide which element predominated in the production of the symptoms. Persons with depressive or cyclothymic tendencies are often found in this subgroup. The psychotic manifestations may be similar to those observed in the mild type but they are generally more severe or protracted and the pre-psychotic personality factors influence the course of the psychosis to a greater extent.

Subgroup C. The Severe Type.—In this subdivision are included those patients in whom the involutional symptoms color or are superimposed upon pre-existing severe personality deviations or abnormal mental states. The climacterium *per se* is relatively unimportant in comparison to the other factors involved. In general, the difference between the psychotic patients of this subgroup and the non-psychotic individuals of group I is chiefly qualitative. In this group, the involutional state is the manifestation of an irreversible ontogenic catabolic process. Patients of this type frequently possess schizoid or rigid personality traits (8, 9). The clinical manifestations may resemble those observed in schizophrenia (10, 11) or in the manic-depressive, mixed type. Other patients found in this subgroup are those with long-standing endocrine or somatic disturbances (including pelvic disease) and those in whom the symptoms are merely early signs of organic brain disease such as arteriosclerosis, senile or pre-senile psychoses. It is often difficult to decide which type of psychosis should be given preference for statistical purposes and to formulate whether a particular patient should be classified in this group of involutional psychosis (II C) or more properly in group III mentioned below.

Group III. The Involutional State Complicating Other Psychoses.—In this group are placed those cases in whom the involutional disturbance exists concomitantly with

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well-established or long-standing definite functional or organic mental illness. In those patients, the onset of the climacterium may intensify or reactivate the psychosis.

TABLE I

COMPARISON OF ESTROGEN-TREATED AND CONTROL CASES OF INVOLUTIONAL PSYCHOSIS

	No. of cases	No. improved	Per cent
Diethyl stilbestrol cases.....	45	27	60
Alpha estradiol benzoate cases.....	15	10	67
Total estrogen-treated cases.....	60	37	62
Control cases.....	128	54	42

When these results were analyzed according to the type of involutional psychosis, it was found that therapy with diethyl stilbestrol produced most favorable response in the simple type (subgroup A). All 11 of the cases in this subgroup responded well, while only 25 (61 per cent) of 41 similar cases in the control series were improved. Of the 14 mixed cases (subgroup B), 11 (79 per cent) were improved by diethyl stilbestrol therapy in contrast to 24 (47 per cent) of the 51 cases in the control series. Of the 20 severe cases (subgroup C), 5 (25 per cent) were benefited by diethyl stil-

TABLE II

RESPONSE OF TYPES OF INVOLUTIONAL PSYCHOSIS

	No. of cases	Much improved		Moderately improved		Total improved		Unimproved	
		No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
(A) DIETHYL STILBESTROL									
Subgroup A (simple)	11	10	91	1	9	11	100	0	0
Subgroup B (mixed)	14	5	36	6	43	11	79	3	21
Subgroup C (severe)	20	0	0	5	25	5	25	15	75
(B) ALPHA ESTRADIOL									
Subgroup A (simple)	4	4	100	0	0	4	100	0	0
Subgroup B (mixed)	6	2	33	3	50	5	83	1	17
Subgroup C (severe)	5	0	0	1	20	1	20	4	80
(C) CONTROL									
Subgroup A (simple)	41	12	29	13	32	25	61	16	39
Subgroup B (mixed)	51	13	26	11	22	24	47	27	53
Subgroup C (severe)	36	0	0	5	14	5	14	31	86

All of the cases that received estrogenic therapy were analyzed according to the above classification. In addition, a large series of patients who had been treated by us(3) with routine hospital procedures were similarly analyzed to provide a control group for comparison.

RESULTS OF THERAPY WITH DIETHYL STILBESTROL

A total of 60 women with involutional psychoses were treated with estrogens. Of these 37 (62 per cent) were classified as improved in contrast to 54 (42 per cent) of 128 women with involutional psychoses in the control group. Of the 45 women who received diethyl stilbestrol 27 (60 per cent) were beneficially affected. These results are indicated in Table I.

bestrol treatment, while 5 (14 per cent) of the 36 cases in the control series responded favorably. These results are indicated in Table II.

A further analysis was made of the degree of response of the cases classed as improved. Of the simple type (subgroup A) 91 per cent of the diethyl stilbestrol cases and 29 per cent of the control cases were much improved; of the mixed type (subgroup B) 36 per cent of the diethyl stilbestrol cases and 26 per cent of the control cases were much improved; of the severe type (subgroup C) none was much improved in either the diethyl stilbestrol or the control cases. These results are indicated in Table II.

Diethyl stilbestrol therapy was administered to 18 patients with involutional states complicating other psychoses (group III). None of the 5 cases of dementia præcox oc-

currence in the involutional period was appreciably benefited by the therapy, although one case did show amelioration of the physiologic manifestations. Improvement was observed in only one of 5 cases of manic-depressive psychosis occurring in the same age period. Five chronic psychoneurotic patients were not affected by the treatment. Only one of 3 arteriosclerotics showed a moderate degree of improvement.

COMPARISON OF ESTRADIOL AND DIETHYL STILBESTROL

Alpha estradiol is the primary naturally-occurring estrogen of the human follicular

usually were not affected by alpha estradiol. The percentage of cases favorably influenced by the former was not significantly different from that of the latter. Of the 15 cases who received alpha estradiol 67 per cent were improved while of the 45 cases who received diethyl stilbestrol 60 per cent were beneficially affected.

Both substances produced a similar effect on vasomotor phenomena (hot flushes) and on the endometrium (proliferative changes, hemorrhage from hyperplastic layers, and estrogen-withdrawal bleeding). Little difference was observed in the type of psychologic effects caused by the two estrogens.

TABLE III

UNTOWARD EFFECTS RESULTING WITH DIETHYL STILBESTROL

PHYSIOLOGIC	PSYCHOLOGIC
Increased vasomotor symptoms (during treatment)	Increased erotism
Headache	Increased restlessness
Abdominal cramps	Homosexual advances
Anorexia	Increased excitement or agitation
Marked subjective discomfort	Masturbation
Nausea or vomiting	Increased frigidity
Weakness	Suicidal attempts
Pruritus vaginae	Increased depression or apathy
Pallor	
Fullness of vulva	
Impending collapse	

fluid. The synthetic preparation we employed is apparently identical with the natural estrogen. It is a sterol.

Diethyl stilbestrol(12-21) is an artificial synthetic preparation which seems to possess almost all of the estrogenic properties of alpha estradiol(21) despite the difference in chemical structure. It is described as 4-4 dihydroxy-alpha-beta-stilbene and is not a sterol. When both of these estrogens are given by injection, alpha estradiol seems to be about twice as potent as diethyl stilbestrol. Despite the varying estimates of its potency, the amount of diethyl stilbestrol given approximated that of estradiol. The former substance possessed several advantages over the latter. It is very potent by mouth, and it is relatively inexpensive.

In the cases herein reported, the effects produced by the two estrogens were for practical purposes entirely similar. The patients who were not improved by diethyl stilbestrol

UNTOWARD EFFECTS

The only important difference in the effects produced by these estrogenic substances was observed with respect to untoward physiological reactions caused by diethyl stilbestrol. These included an increase in vasomotor disturbances particularly in subjective dermal sensations, nausea, vomiting, headache, anorexia, severe abdominal cramps, vertigo, weakness, pruritus vaginae, feeling of fullness in the vagina or lower abdomen. More than moderate subjective discomfort was observed in 22 of the cases. These effects are summarized in Table III.

The toxic disturbances usually occurred early in the course of therapy, generally after the third or fourth day. In seven patients the manifestations were so severe that the treatment had to be temporarily discontinued. After a rest period, smaller doses of the drug were given but in 3 cases continua-

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tion of the therapy even with smaller doses was not possible because of the persistence and aggravation of the untoward effects. Most of the patients with toxic reactions develop sufficient tolerance to the drug so that the unpleasant symptoms were no longer troublesome. It was felt that the advantages of oral medication would more than outweigh the discomfort of the toxic reactions in most patients. Since only a few of the unpleasant effects were persistent or alarming they did not interfere with the resumption of the régime of treatment except in 3 patients who were considered to possess idiosyncrasy to the drug. Uterine bleeding from a hyperplastic endometrium was anticipated as consequence of the continuous estrogen treatment, and required only a temporary interruption of the therapy in a few cases. Carcinoma of the uterus or of the breast did not occur in any of the cases.

Untoward psychologic effects were observed most frequently in the severe type of involutinal psychosis. These effects are summarized in Table III. An increase in erotic tension was noted in 33 of the patients, six of whom found it very annoying. Three patients attempted suicide during the therapy. Increased agitation, excessive masturbation and homosexual tendencies were observed in 8 cases.

DISCUSSION

The results indicate clearly that estrogenic therapy is most beneficial in involutinal psychoses of the simple type. Cases classed in this category (group II, subgroup A) responded almost as well to diethyl stilbestrol as those individuals who manifest menopausal symptoms and are considered to be without psychosis (group I). A close relationship seems to exist between these two groups, since they both appear to be due to estrogenic deficiency. Therefore, within certain limits, a therapeutic test with estrogens may have diagnostic value in differentiating those mental states which are the result of estrogen deprivation itself from those which result from a number of factors, one of which is deficient ovarian function. If a patient improves when estrogens are administered a psychosis with an estrogenic deficiency may be assumed to exist. If the

patient does not, other factors than the lack of estrogen are paramount in the etiology of the psychosis.

While fair results were obtained with estrogenic treatment in many of the patients with a moderate or mixed type of involutinal psychosis (subgroup B), the improvement was neither as marked nor as rapid as in the mild cases. Recurrence of symptoms was more frequently observed, necessitating supplementary treatment with other forms of therapy such as progesterone, pituitary sex hormone, adrenal cortical hormones, thyroid extract, continuous narcosis, hydrotherapy and psychotherapy.

The results in the severe type were uniformly poor, and none of the estrogenic-treated cases was greatly benefited. A more favorable response is claimed to non-specific treatment with metrazol(9) and electric shock(22).

SUMMARY

1. Large doses of diethyl stilbestrol were administered to 45 women with involutinal psychoses.
2. Twenty-seven (60 per cent) were improved, while in a control series of 128 women, only 54 (42 per cent) were improved.
3. (A) The simple cases of involutinal psychosis responded well to estrogenic therapy. (B) The cases of moderate severity and those of the mixed type reacted favorably, particularly when adjuvant therapy was employed, but relapses occurred and the degree of improvement was not as marked. (C) The psychotic manifestations in the severe cases were not materially affected. These cases may represent a different clinical entity than the mild cases. (D) Therefore, a therapeutic test with estrogenic substance may possess some diagnostic value in involutinal psychoses.
4. Cases of dementia præcox, manic-depressive psychosis, and chronic psychoneurosis occurring during the involutinal period were not favorably influenced by estrogenic therapy.
5. Diethyl stilbestrol administered orally was about as effective as alpha estradiol injected intramuscularly. About half of those who were given the former preparation exhibited some form of toxic reaction which

for the most part did not seriously interfere with the treatment régime. Both substances produced similar psychologic effects.

6. It is concluded that adequate estrogenic therapy has a definite value in the treatment of cases of involutional psychosis of the simple type.

CASE REPORTS

CASE 1.—F. B. M., age 44, illustrative of the simple type.

Family History.—Patient was adopted at the age of 8. Nothing was known concerning family history.

Personal History, Development and Previous Adjustment.—Very little known concerning birth and infancy but described as a healthy child. School achievement and adolescent development normal. At the age of 23 she married a man one year her senior. Two children resulted from this union. Married life was happy although her husband was frequently out of work and never earned much money. Menses began at the age of 13 and were regular until 9 months prior to admission when the menopausal syndrome commenced.

Personality.—The patient was described as friendly, good natured and ambitious. She had a wide circle of acquaintances and enjoyed meeting people. However, she was sensitive and easily hurt. She and her husband were compatible in their sex relations.

Onset of Psychosis.—Six months prior to admission she began to feel weak, depressed, fatigued and cried a great deal. Because of her husband's inability to find work and their dependence on the Welfare Department she became faultfinding and irritable. She was unable to perform her household duties and was disgusted with her husband who irritated her with what she considered foolish remarks. She avoided people and stated that she was worthless to herself and her family.

Course in the Hospital.—The patient was admitted October 31, 1941. It was noted that she was depressed, worrying, tired, hesitant, agitated, tearful. She stated that she was worthless and could do nothing. She felt that she was being mistreated by the Welfare Department and that there was no solution to her financial problems. She expressed ideas of guilt with respect to her husband and family. Sensorium was intact.

Physical examination revealed an undernourished female. Blood pressure was 118/82. No other significant findings.

Treatment.—During the first week she received 4 mg. of diethyl stilbestrol daily; the next week 3 mg. daily; and thereafter 2 mg. daily for the duration of the treatment.

Results.—She showed rapid improvement even before a month had elapsed. Her agitation and resentment toward her husband disappeared. She again felt active and was anxious to go home and take care of her home and family. She was discharged as recovered, has been reporting at regular intervals to the out-patient department and to date her adjustment has been very good.

CASE 2.—N. B. A., age 53, illustrative of the mixed type.

Family History.—Two maternal aunts were psychotic and had been committed to state institutions.

Personal History, Development and Previous Adjustment.—Birth was normal. She had asthma periodically since infancy and as a result of this completed only the 7th grade of school at the age of 16, despite the fact that her I. Q. was normal. She married at the age of 24 but was unable to make more than a fair marital adjustment. She had 4 children, 3 of whom are living. Her menses began at 16 years. At 47 years the menopause began, and menstruation ceased completely 4 years later, following which she felt anxious and irritable.

Personality.—The patient was described as a person closely attached to her home but with a few outside interests and superficially friendly. She was inclined to worry and be domineering. Although she worked hard at her household duties she was not too efficient. She submitted indifferently to sexual relations with her husband. She realized that she had become increasingly frigid after the first few years of married life.

Onset of Psychosis.—Eight months prior to admission she began to complain of severe exhaustion. This became progressively worse until she was unable to leave her bed. She was seen by various physicians who could find no organic cause for her condition and she was advised to take a vacation. However, she soon became depressed again, was agitated, and complained of abdominal pain and constipation. She felt that she would never get well; that no doctor could help her; and that suicide would solve her problem. Later, she became increasingly restless, depressed and frequently threatened suicide. Her abdominal distress became so severe that she refused to eat.

Course in Hospital.—The patient was admitted October 26, 1940. She was markedly depressed, anxious and indecisive. She felt that there was no hope for her and admitted suicidal ideas. She continued to be moderately agitated, irritable and fault finding; demanded her release; complained daily of insomnia, abdominal pain and burning sensations; and stated that she refused to eat because she was not assimilating her food properly. When her husband visited her she berated him; claimed that she was being mistreated and abused; and demanded that he take her home immediately. Sensorium was intact.

Physical examination was essentially negative except for a mild degree of chronic bronchitis. Blood pressure 145/90. There was no evidence of peripheral or retinal arteriosclerosis.

Treatment.—During the first week she received 4 mg. of diethyl stilbestrol daily; 3 mg. daily the second week and a maintenance dosage of 2 mg. for the next three weeks.

Results.—During the treatment she manifested gradual improvement. After a month she became cooperative and compliant, was no longer depressed and agitated. She developed some insight into her suicidal tendencies. She was discharged as much improved and asked to be allowed to return at regu-

lar intervals to the out-patient department for check-up. She is making a fair adjustment at the present time.

CASE 3.—A. C., age 57, illustrative of the severe type.

Family History.—Negative with respect to nervous and mental disease in her antecedents.

Personal History, Development and Previous Adjustment.—Birth and early development normal. She had no difficulties in the adolescent period except for discomfort at the onset of her menses which began rather late. She graduated from high school and soon after married. Her husband was a minister; three children resulted from this union. The marriage was very congenial but the patient was quite seclusive, shy and disinterested in the sexual phase of marriage. She had repeated menstrual difficulty and a fibroid tumor was removed at the age of 54. Her husband died three months before this operation was performed. A year later her son committed suicide.

Personality.—Patient was described as passive, overconscientious and excessively devoted to her children and husband. She was quite seclusive, depended on her husband and had few outside interests except her church work. She frequently complained of being lonely but would do nothing about it.

Onset of Psychosis.—Three years prior to admission following her husband's death she became quite depressed. Following the suicide of her son she became progressively worse. A marked degree of agitation was manifested which steadily increased in the last six months. The patient began to think that she was responsible for the death of her husband and son that that people were calling her names. She also believed that she was being punished and wanted to die.

Course in Hospital.—The patient was admitted October 31, 1941. She was first noted as agitated, depressed, tearful and delusional. Subsequently she stated that she had a disease which was fatal to anyone who associated with her. Marked feelings of guilt, self-accusation, extreme agitation, emotional instability and fear were manifested. She stated that people were calling her names and blaming her for the death of her husband and son. Delusions of sin, hopelessness and worthlessness were also present. She refused to eat in the hope that she would die and made one suicidal attempt during treatment.

Physical examination revealed a poorly nourished female. Blood pressure was 160/95 and a mild degree of arteriosclerosis was present.

Treatment.—She received 4 mg. of diethyl stilbestrol daily for the first week; 3 mg. daily the next week and 2 mg. daily for three weeks.

Results.—She failed to show any improvement. She became more restless, agitated and self-condemnatory. There were numerous complaints concerning subjective discomfort, nausea, anorexia, weakness, abdominal cramps and erotic manifestations. She was committed on November 28, 1941 to one of the larger state hospitals for continued care.

CASE 4.—R. K., age 60, illustrative of the mixed manic type.

Family History.—Negative with respect to nervous and mental disease.

Personal History, Development and Previous Adjustment.—Birth and early development normal. However, she was always shy in the presence of the opposite sex and somewhat high-strung. Her menses began late. She attended a convent school, made only a fair scholastic adjustment and completed her high school course at the age of 20. After this, she remained in her grandmother's home and had no real occupation. At the age of 30 she married a man who was 16 years her senior and she bore him three children. Her menses ceased about five years prior to admission. Since then she became increasingly irritable.

Personality.—The patient was described as very conscientious. She displayed little interest in the sex relationship. At the age of 32 following the birth of her first child she became increasingly high-strung, hypochondriacal, somewhat anxious and easily fatigued. She was in a private sanatorium for about four weeks; the diagnosis was postpartum depression. It was stated that she was improved on discharge. After this, she became energetic, a leader in activities of women's clubs and domineering with respect to her husband. However, her private physician stated that she had somatic and other psychoneurotic complaints throughout most of her married life.

Onset of Recent Psychosis.—Two months prior to admission the patient became very depressed and fearful. She thought she had developed a cancer and that this was incurable. Repeated physical examination revealed no pathology but this failed to reassure the patient. She became increasingly tense, agitated, constantly tearful and lost 20 pounds in weight. She expressed fear that she would infect her family as a result of her illness, that they would be tormented and die; that the family was ruined financially and that she was the cause of all their troubles. She expressed suicidal ideas.

Course in the Hospital.—The patient was admitted July 14, 1941. It was noted that she was agitated, depressed and fearful; that she wrung her hands and stared tragically at the examiner; that she felt her situation was hopeless, that nothing could be done for her in the hospital; that she was convinced her body had a foul odor and that she was shunned by everyone because of it. She responded to auditory hallucinations, refused to let the nurses come in contact with her for fear that they might contract her illness and expressed grave fears for the safety of her family because of her sinfulness. Sensorium was intact.

Physical examination revealed an undernourished female with a very mild degree of arteriosclerosis. Blood pressure was 130/90. No other significant findings.

Treatment.—She received 4 mg. of diethyl stilbestrol daily for one week; 3 mg. daily the second week and was continued on a maintenance dose of 2 mg. daily for the next four weeks.

Results.—At first, on the larger doses the patient showed some improvement but later became again depressed, fearful and agitated. She continued to hallucinate and show the same delusional trend. However, while she did not respond to estrogenic therapy she improved slightly prior to discharge, six months after admission.

Cases 2, 3 and 4 illustrate the diagnostic difficulties which were mentioned in the discussion of the more severe types of involutional psychosis. Because of the previous mild attack of depression, a diagnosis of mixed manic-psychosis was made in Case 4.

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AN ALCOHOL DETOXICATION MECHANISM IN THE CENTRAL NERVOUS SYSTEM¹

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Alcoholic beverages have been taken by man as far back as records are available. Although ethyl alcohol probably affects the function of every tissue in the body, its greatest effect, by far, is on the central nervous system. It is generally agreed that it modifies the function of the brain, in large concentrations at least, by a depressing action beginning with the cortex and extending to the phylogenetically older levels. The result of depression of the cortex is release of the lower centres. Man has used this pharmacological property of alcohol as an aid to conviviality in social intercourse and as an escape from the tension, worries and drabness of his everyday life. Taken in very large amounts it may so depress the vital centres as to lead to coma and death. If alcohol is consumed in sufficient quantities over a period of years there is a tendency to develop various psychoses, *e.g.*, Korsakow's acute and chronic hallucinosis, alcoholic deterioration, etc. Alcohol thus accounts for a significant percentage of all mental disease. The apparent consumption of alcohol in Canada for the year 1940 is given by the Dominion Bureau of Statistics(1) to be 3,818,409 pf. gals. of spirits, 66,196,961 gals. malt liquors and 4,012,917 gals. of wines. In the United States(2) the total consumption of absolute alcohol from distilled spirits, wine and beer (in U. S. gals.) for the year 1940 is given as 151,926,993. It is obvious therefore, as Myerson *et al.*(3) have stated, that "alcohol seems to be as firmly a part of life of mankind as his industrial and sexual habits."

Since alcohol has a narcotic action on the central nervous system, interfering with adjustment to a complex environment and

since it may possibly have an injurious effect on the nerve cell,² the question arises as to whether the central nervous system is equipped with any mechanism to rid itself of this substance. Goldfarb and Wortis(4) have reviewed the literature pertaining to the ability of brain to metabolize alcohol. Yamakita(5) by the method of blood sampling of the intact rabbit brain, showed an increased oxygen consumption of the brain preceding the narcotic stage of alcoholization and strongly suggested that the brain can oxidize alcohol. Robertson and Stewart (6) made similar observations on excised tissue. Himwich *et al.*(7) working with alcoholized excised tissue of the rat cortex found a shift of the respiratory quotient toward that of alcohol which they felt indicated the ability of cerebral cortex to metabolize alcohol. Wortis(8) also found an increased oxygen uptake of alcoholized brain tissue in the Warburg apparatus. However, Blochin(9) working with dogs and cats, and Goldfarb *et al.*(10) with human subjects, on sampling the arterial and venous blood of brain, found a reduction of oxygen uptake of the brain under the influence of alcohol. A difficulty here, of course, is the fact that the narcotic effect of alcohol on the general cerebral metabolism might mask any consumption of oxygen due to alcohol itself. Goldfarb and Wortis(4) administered alcohol to patients during hypoglycaemic coma but the patients did not rouse and the oxygen uptake of the brain remained unchanged. They felt that the brain did not oxidize the alcohol to any appreciable degree under these conditions. They quote, however, their previous work (11) which showed that the oxidation of alcohol in the body as a whole is accelerated when glucose is simultaneously oxidized and they therefore state that "the possibility re-

¹ From the Department of Biochemistry, University of Western Ontario (Prof. A. B. Macallum) and the Department of Psychiatry, University of Toronto (Prof. Clarence B. Farrar).

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² Opinions differ as to the amount of damage due to direct action of alcohol and that due to an accompanying avitaminosis.

mains that the brain can metabolize the alcohol in the presence of adequate amounts of glucose." They conclude from the work to that date, that the question of the ability of the brain to oxidize alcohol remains unanswered.

The present study, however, shows the presence of an alcohol oxidation system in brain. The mechanism has been extracted and analysed.

EXTRACTION OF THE CATALYTIC SYSTEM

Brain of a number of animals was used for this investigation. The following description is for rabbit brain but the same principle was employed throughout, the quantities of reagents varying according to the amounts of tissue used in each case. The brain of a rabbit is removed immediately after killing the animal. The tissue is placed directly in a mixmaster and 100 ml. of M/50 phosphate buffer pH 7.4 added. The tissue is then extracted by rapid rotation of the blades for fifteen minutes. The extract is centrifuged at 1500 rev./min. for three minutes to throw down cellular debris. The supernatant is brought to pH 4.6 by adding 10% acetic acid. The precipitate is centrifuged, washed with distilled water and finally taken up in 20 ml. M/10 phosphate buffer pH 7.4. This extract contains the catalytic system minus diphosphopyridine nucleotide which has been purposely separated from the system along with substrates. Diphosphopyridine nucleotide is a normal constituent of all tissues and shown to be present in brain by Syme *et al.*(12). It was prepared for the present study from brewer's yeast by the method of Williamson and Green(13).

THE CONSUMPTION OF OXYGEN WHEN ALCOHOL IS PRESENT

The brain extract in presence of alcohol and diphosphopyridine nucleotide takes up oxygen readily. The experiments were carried out in Barcroft differential manometers in a water bath at 37.5° C. Fig. 1 demonstrates the oxygen consumption rate in the presence of alcohol. It is evident that there is no appreciable utilization of oxygen in absence of alcohol.

THE VITAMIN, NICOTINIC ACID, AS AN ESSENTIAL COMPONENT OF THE ALCOHOL OXIDATION SYSTEM OF BRAIN

Nicotinic acid is an integral part of the molecule diphosphopyridine nucleotide. Table I and Figs. 2 and 3 demonstrate that

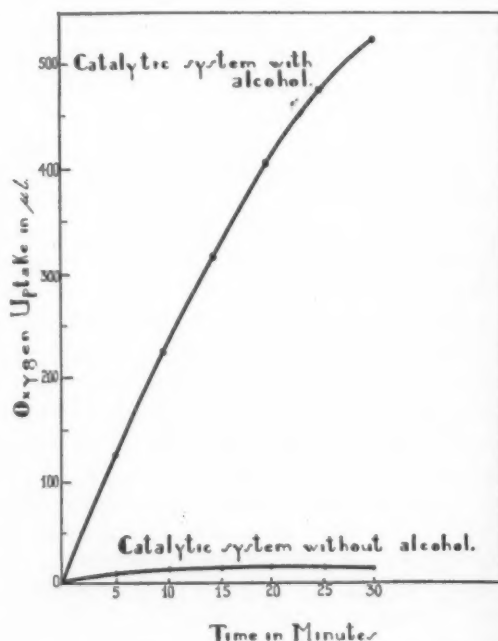


FIG. 1.—Oxygen consumption in the presence of alcohol. The experimental manometer contained 2 ml. brain extract, 0.5 ml. 0.3% diphosphopyridine nucleotide, and 0.07 ml. 10% ethyl alcohol was placed in Keilin cups and added to the system after few minutes equilibration. 0.4 ml. 20% KOH with filter paper was placed in the central pots to absorb any CO_2 . The central cup contained an equal vol. of water and alcohol to equalize vapour pressure. A control experiment was done with the same concentrations as above but omitting alcohol. Readings for the oxygen uptake in both experiments are recorded in Fig. 1.

TABLE I

THE VITAMIN, NICOTINIC ACID, AS AN ESSENTIAL FOR THE OXIDATION OF ALCOHOL BY BRAIN

Complete system contained 2.0 ml. of brain extract, 0.5 ml. 0.3% diphosphopyridine nucleotide and 0.07 ml. 10% ethyl alcohol.

	Oxygen uptake in $\mu\text{l O}_2/30 \text{ min.}$
The complete catalytic system.....	340
The system without the nicotinic acid containing catalyst	0

brain only oxidizes alcohol if this vitamin-containing catalyst is present.

VITAMIN B₂ AS A COMPONENT OF THE ALCOHOL OXIDATION SYSTEM OF BRAIN

Recently Euler *et al.* (14), Dewan and Green (15), Straub (16), Haas (17), and

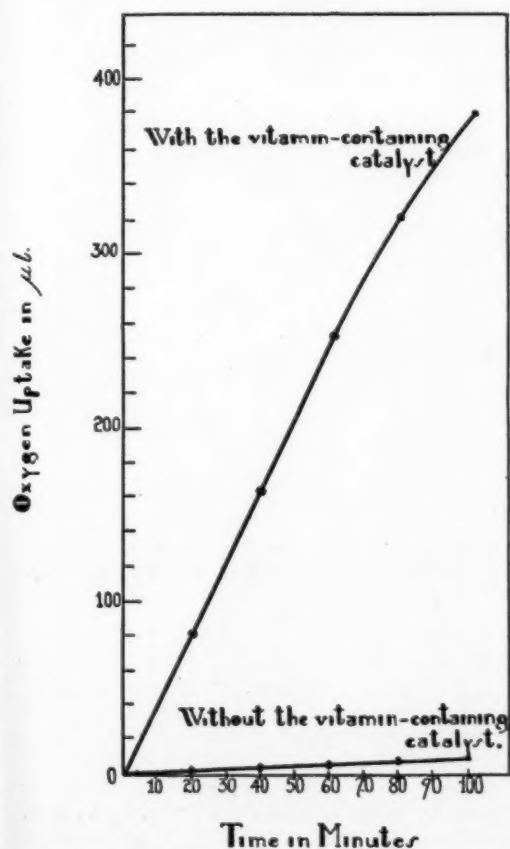


FIG. 2.—The effect of the nicotinic acid containing catalyst on the oxidation of alcohol by brain. Each manometer contained 2 ml. brain extract and 0.07 ml. 10% ethyl alcohol. 0.4 ml. 20% KOH was placed in the centre pots. The experimental manometer contained in addition 0.3 ml. 0.3% diphosphopyridine nucleotide.

Haas *et al.* (18) have demonstrated that in the living cell, there are flavoproteins, *i.e.*, vitamin B₂ containing catalysts which are components of all diphosphopyridine oxidation systems. Vitamin B₂ would therefore be a component of the alcohol oxidation system of brain acting as a hydrogen carrier between reduced diphosphopyridine nucleotide and the cytochrome system.

THE PRESENCE OF THE ALCOHOL DETOXICATION SYSTEM IN BRAIN OF VARIOUS ANIMALS

Brain of the following animals has been investigated and the oxidation system extracted and analysed: dog, cat, pig, cow, rat, guinea pig and rabbit. Table II indicates the oxygen uptake of the catalytic system in the presence and the absence of alcohol.

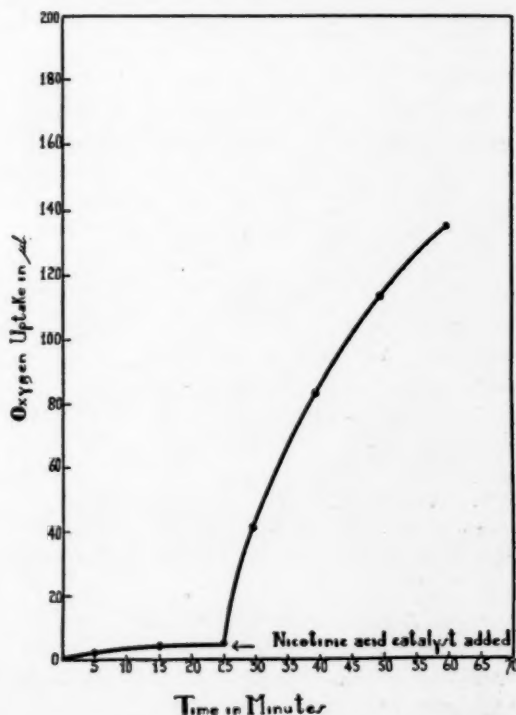


FIG. 3.—The effect on the oxidation of alcohol of adding the nicotinic acid catalyst. One manometer was used. It contained 2 ml. brain extract and 0.07 ml. 10% alcohol. 0.4 ml. 20% KOH and filter paper was placed in the centre cups. 0.3 ml. 0.3% diphosphopyridine nucleotide was placed in a Keilin cup and tipped into the system at time noted in figure.

The oxygen consumption rates are not quantitatively comparable since equivalent weights of brain were not used in each case. However, it does indicate that the alcohol system in brain is very active. It also shows the prevalence of the mechanism in the central nervous system throughout the animal kingdom.

DISCUSSION

An alcohol oxidation system has been found to be present in brain. Since this

mechanism burns alcohol, a substance which is known to interfere with normal functioning of the brain, it is suggested that this system probably acts as a detoxicating or protective device. As two members of the vitamin B complex, namely nicotinic acid and riboflavin, are essential components of the system it is imperative that there be a sufficiency of these catalysts to keep nature's defence at an optimum. However, individuals consuming large amounts of alcohol over an extended period are known(19) to be subject to vitamin deficiencies, particularly of the B complex. In these individuals there is thus the likelihood of alcohol reach-

plex, namely nicotinic acid and riboflavin, are components, *i.e.*, they are essential for brain to metabolize alcohol.

3. The possible rôle of the mechanism in the economy of the central nervous system has been discussed. It has been suggested that it may function as a detoxicating or protective device when alcohol is used in narcotic concentrations.

Investigations are being carried out to determine the chemical steps in the metabolism of alcohol by brain.

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TABLE II
OXIDATION OF ALCOHOL BY THE DETOXICATION
SYSTEM FROM BRAIN OF VARIOUS ANIMALS

The systems contained 2 ml. brain extract, 0.5 ml. 0.3% diphosphopyridine nucleotide and 0.07 ml. 10% ethyl alcohol. Koh papers in centre pots.

Source	Oxygen uptake in ml/30 min.	
	With alcohol	Without alcohol
Dog	210	3
Cat	180	6
Pig	210	4
Cow	340	3
Rat	223	7
Rabbit	315	0
Guinea pig	226	2

ing higher concentrations and for longer periods in the central nervous system than would occur if there was a sufficient amount of the vitamins to metabolize alcohol at a maximum rate. Increase in the nicotinic acid and riboflavin intake in these individuals would therefore seem essential.

Oxidation of alcohol results in the release of energy. This would be offset, except possibly when small concentrations are used (5, 6), by the depressing action of alcohol on the total metabolism of brain.

The fact that brain is equipped to metabolize alcohol indicates that the central nervous system is more versatile chemically than has hitherto been thought.

SUMMARY

1. An alcohol oxidation mechanism has been found to be present in brain. The extraction and analysis of the system has been described.

2. Two members of the vitamin B com-

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DISAPPOINTING RESULTS WITH BILATERAL PREFRONTAL LOBOTOMY IN CHRONIC SCHIZOPHRENIA

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The treatment of the functional psychoses has experienced a great positive advance during the past ten years. Today, the various shock therapies hold a paramount position in the armamentarium against the affective and schizophrenic disorders. Notwithstanding the encouraging results obtained, experience taught that while a series of metrazol or electric convulsions would shorten a manic or depressive attack, and that a number of insulin comas would clear up a catatonic or paranoid condition, neither of these procedures could prevent a recurrence of psychotic symptoms in a large number of cases. Moreover—and this is perhaps by far the most disappointing fact—none of the shock therapies proved to be efficacious once the mental disease had passed the acute phase. It is true that there are cases on record where metrazol or electric convulsions had produced startling results in chronic involutional melancholias, and where schizophrenics of long standing had responded favorably to insulin treatment. However, it was especially that latter group, which, save for a few numerically insignificant exceptions, had thwarted all therapeutic efforts. It was the grave prognosis of chronic schizophrenia which had prompted such procedures as Dauerschlaf, protracted and intensified insulin comas, or an extended number of artificial convulsions. In view of the ensuing negative results, it was, therefore, not surprising that recent reports of improvement or even recoveries in chronic schizophrenics following bilateral prefrontal lobotomy were received with enthusiasm.

Since Strecker and his associates(1) saw such miraculous results in a number of chronic schizophrenic patients, we likewise selected for bilateral frontal lobotomy patients whose psychotic life was characterized by "restlessness, irritability, noisy excitability, dangerous clashes with the environment, refusal of food, unwillingness to tolerate clothing, etc."

Ten schizophrenics and one case of mental

deficiency with periods of excitement were subjected to the operation. The psychotic symptoms often associated with incorrigible untidiness had prevailed for six to thirty-two years. The youngest patient was twenty-six, the oldest forty-nine years of age; the average age was thirty-five years.

Ether anaesthesia was used in all cases. The procedure of the operation is rather simple according to Freeman and Watts(2).

A burr hole $1\frac{1}{2}$ cm. in diameter is drilled in the coronal suture at a point 6 cm. above the zygomatic arch. After crucial incision of the dura a blunt blade is inserted in the brain substance to a depth of 5 cm. and the white substance sectioned by gentle rotation of the instrument in the coronal plane. Previous exploration with a brain cannula had assured a position frontal to the anterior tip of the lateral ventricle.

In a number of cases the burr holes had to be enlarged in the frontal direction when the ventricle had been punctured by the cannula. This fact is mentioned to indicate that the white matter was sectioned as far posteriorly as safety would permit. Following irrigation with warm saline solution the wound was closed in two layers of interrupted black silk sutures.

RESULTS

Death occurred in two cases, each patient dying five days following operation. Autopsy disclosed as cause of death severe bronchopneumonia in the first patient; a large hemorrhage in the right frontal lobe in the second patient.

An average period of nine months has elapsed since the operation and up to date only two patients have shown some amelioration of their conditions. One of these patients, who, in a child-like manner, was given to hopping on one leg about the ward has not displayed this motor activity following the operation, and now tolerates clothing whereas she would formerly, upon occasions, tear her garments. The other patient has

discarded the habit of aimlessly plucking at her clothing; she can easily be induced, however, to repeat this activity and will persevere for a considerable length of time. No improvement whatever could be seen in any of the other patients.

In one patient the operation has even produced an aggravation of her psychotic symptoms; she is more restless, more agitated and more combative than before, and two months following treatment has suffered from repeated epileptiform convulsions.

SUMMARY

Bilateral prefrontal lobotomy was performed on 10 chronically disturbed schizo-

phrenics and one mentally deficient patient. Insignificant amelioration of symptoms was noted in two and no improvement in all the other patients. One patient became decidedly worse and developed convulsive seizures two months following the operation. On the basis of our experience, therefore, frontal leucotomy is not recommended as a therapeutic procedure in chronic schizophrenia.

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PSYCHOTIC VISITORS TO GOVERNMENT OFFICES IN THE NATIONAL CAPITAL

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In its issue for April 21, 1835, the Washington, D. C. newspaper, *The Intelligencer*, observed, "It is a notorious fact that this city, being the seat of government, is liable to be visited by more than its proportion of insane persons. . . ." This observation is as valid today as when it was made more than a hundred years ago. The number of such persons has become greater with the increase in our population and the improvement in our transportation facilities. It has fluctuated according to the intensity with which the changing problems of government have occupied popular interest, and it has varied also according to the personality of the presidential incumbent. The need and the drive of psychotic persons throughout the nation and over a period of years to express themselves as described in this paper has apparently remained essentially unchanged.

Of these psychotic visitors to Washington a certain number—but not all—are committed to Saint Elizabeths Hospital. Here the writer has had the opportunity of examining almost every white male patient in this category admitted during the past five years. In addition, and to serve as a check on his observations, he has carefully read or re-read the case records of all such patients committed to the hospital—irrespective of sex or color—during the two arbitrarily selected years of 1927 and 1937. It is on this basis that the present report is made.

At Saint Elizabeths Hospital we have come to refer to this group of patients rather loosely as "White House Cases" because so many of them are hospitalized following efforts to see the President at his official residence. Actually only a little more than half of the patients come to see the President but the others, who are content to visit with lesser functionaries of the government, are

indistinguishable symptomatically and otherwise from the group who go to the White House.

The avowed purposes of the visits of these psychotic persons have varied over the years in correspondence with the varying problems engaging popular attention. For instance, one of the older hospital records describes a man who went to the White House to compel President Cleveland at the point of a pistol to recognize the Knights of Labor. For several years after the last war psychotic ex-soldiers came to Washington in fairly large numbers to see the President or the Director of the Veterans Administration about obtaining a pension or increasing the amount of a pension already being received. In recent years we have seen an increasing number of patients who have come to Washington to offer advice to the President about solving the economic problems of the nation or of the world, or about preventing or winning the war. But it is only the content of the delusion that changes during the years—the patient otherwise is essentially the same.

Of 53 patients whose case records were reviewed for the purpose of this presentation, there were 28 who came to see the President and only one who asked to see the Vice-President. The others expressed desires to see the Secretary of the Treasury, the Secretary of the Navy, the Department of Justice, the Chiefs of the Federal Bureau of Investigation and of the United States Secret Service, the Chief Justice of the United States Supreme Court, the Director of the Veterans Administration, the Patent Office, their respective congressmen and senators, or merely "the government."

While their purposes in coming to Washington were variously phrased, usually they had to do with the obtaining of money, the giving of advice as to how better to run the government, or the obtaining of relief from alleged persecution. Twenty-one in the group studied came to demand federal investigation of claimed persecution, its cessation, and punishment of the alleged persecu-

¹ From Saint Elizabeths Hospital, Washington, D. C., Dr. Winfred Overholser, Superintendent.

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tors. In this number were several who demanded redress for mental hospitalization in their home state which, they claimed, was unjust. A few wanted to learn why they could not obtain or hold employment or wanted presidential aid in obtaining employment.

Five of the 53 came to collect fabulous sums which they believed were due them. Not even a patient with general paresis is more grandiose than some of these patients. One woman, a 32-year-old native of Russia, had been in this country for 18 years, had married at the age of 15 and separated a year later. All her life she had worked in factories at a meager salary. She came to the Treasury Department in Washington demanding \$300,000,000 which, she claimed, was being kept there for her. She claimed that her family had originally loaned this money to the English government to help them pay their war debt to the United States and that Queen Mary of England, to whom she claimed relationship, had now brought this sum to the United States to be turned over to her. Another patient, whose grandiosity had a religious coloring, came to Washington to get presidential assistance in obtaining a patent for a flame-thrower which, he claimed, could destroy all the enemies of the United States. With a marked Slavic accent he would patiently explain who he was "There's God who is Number 1, and Jesus Christ who is Number 2, and me, I am Number 3."

There were 5 in this group who came to see about obtaining patents for bizarre inventions. Seven came to obtain pensions or to have existing pensions increased. Seven wished to offer to the President or to some other government official advice as to how to improve the conduct of the affairs of the nation—domestic and foreign. Two claimed that they had been elected to the office of the President of the United States and came to Washington to be sworn in. Two came to join the Federal Bureau of Investigation as operatives. The missions of 4 others were vaguely and incompletely described.

My purpose in reading the case records of a group of consecutive admissions was, in part, to determine whether the addition of the female sex and colored race to the study

would alter the general picture which I had formed from my examinations made only on white males. I found that there was a great degree of similarity in these patients irrespective of race or sex. However, I did find that the male sex and the white race predominated in the group since 41 of the 53 patients were men and 47 were white. This is a higher proportion than white men form in the total of civilian admissions to the hospital.

The age on admission of these patients varied from 19 years to 70 years, with a median of 44 years. Forty-three were 35 years of age or older when admitted. This is in agreement with the common finding that the paranoid types of psychoses (as these are generally diagnosed) tend to occur later in life.

The marital status of the members of the group is striking. Of only 5 (out of 53) patients was it recorded without qualification that they were married. Five were widows or widowers. There were 15 divorces and 11 separations in the group and 24 had never been married. Frequent references were made in the records indicating frustration in sex life and poverty of sex-experience. Delusions and hallucinations referring prominently to sex functions and sex organs were common.

Not only were marital partners lacking in many of these cases but also frequently there were no relatives or friends sufficiently interested in the patient to respond to correspondence from the hospital. A number of patients were orphans raised in orphan asylums or foster homes. Most of those of foreign birth had no relatives in this country.

Sixteen of the 53—30 per cent—were born outside of the continental United States. Of these, 9 were of the Slavic race—born in what was once Imperial Russia or in the Slavic portion of what was formerly Austria. There were 3 natives of Germany and one each from Syria, Greece, Puerto Rico and Canada. In addition to these, there were 8 patients who, while born in the United States, had one or both parents who were foreign-born.

Most of these patients had been mentally ill for months or years prior to their coming to Washington and their admission to Saint Elizabeths Hospital. Twenty-two had pre-

viously been hospitalized for mental disease. There was commonly a history of unsettled domicile and poor occupational adjustment for months or years prior to hospitalization, and this may be presumed to be evidence also of the existence of mental illness in these individuals during this period.

Only 3 of the patients were natives of the District of Columbia. The last extended domicile of the members of the group included 22 different states. Although California is the most distant, the number of patients from that state was exceeded only by the number from New York.

Most of the patients had never made a very good occupational adjustment. While a few had at one time had fairly good and regular employment, practically all were irregularly employed or not employed at all for a considerable period immediately prior to hospitalization. The occupations listed were almost invariably in the unskilled trades—laborers, clerks, domestics, janitors, miners, porters, farmers, a pants-presser, a chambermaid, a shoemaker, a weaver, a peddler. Over half the group had less than an eighth grade education. Two-thirds of the group had not been self-supporting for months or years prior to their hospitalization.

It is of some interest to note that, with reference to their expressed religious affiliation, there was only one patient who expressed adherence to a sect. Possibly adherence to a religious sect—in itself evidence of mental instability—obviates the need for this particular method of solving one's conflicts.

Twenty-nine patients were members of various Protestant denominations, 19 were Catholics, 2 were Jewish. One claimed to have no religion, and the religion of another was not recorded.

There are few types of patients so completely and so permanently lacking in insight as the members of this group. Yet in spite of their verbal insistence upon the validity of their bizarre and fantastic delusional ideas, few are aggressive in expounding them. It is the rule that these patients are, with certain notable exceptions, quiet, pleasant, congenial, cooperative and well behaved. They accept their enforced hospitalization with a remarkable degree of passivity and frequently without even verbal complaint.

They rarely attempt to leave the hospital without permission. Only 3 of the entire group were recorded as being frequently combative while patients at Saint Elizabeths Hospital. Nevertheless, because of their complete lack of insight coupled with their bizarre delusional ideas, these individuals must be considered and treated as potentially the most dangerous patients we have to care for.

As might be anticipated, the diagnosis in the majority of these patients with a so-called functional psychosis was either dementia præcox, paranoid type, or paranoia and paranoid conditions, paranoid condition. The former diagnosis was made in 23 patients and the latter in 6. Twelve more were designated as suffering from types of dementia præcox other than the paranoid type. Manic-depressive psychosis, manic type, was the diagnosis of 3 more. Four received the diagnosis of psychosis with cerebral arteriosclerosis, and one each the diagnosis of epileptic psychosis, alcoholic psychosis, psychosis with mental deficiency, psychosis with psychopathic personality, and psychosis with organic changes of the nervous system (paralysis agitans).

The generally unfavorable outcome in these cases might also be anticipated, both from the diagnoses recorded and from the other data mentioned. Only one of the 53 recovered (a patient with manic-depressive psychosis, manic type). Four more made some improvement, but the remainder—48 in number—were unimproved. Only 10 of the group were considered eligible for discharge from the hospital and the rest—43—either remained at Saint Elizabeths Hospital or were transferred to other hospitals.

The attraction that Washington holds for these patients is not fully explained by the fact that it contains the offices of the highest ranking government officials. For some there is a more personal relationship created and this is well verbalized by one of our recent White House visitors. This is M. M., a 29-year-old bus boy, born in the United States of Hungarian parents and himself resident in Hungary between the ages of 9 and 20. He had worked in this country at various odd jobs such as dish-washer and hotel porter, had been arrested five years

previously for vagrancy, had wandered about the country, was apparently hallucinated for years prior to his hospitalization. He finally went to the White House to see the President to have the latter "help me get a job and help me get married." His reason for going to the President was that "since he is President he is, therefore, the father to us all." This same sort of thinking may account for the relatively high proportion of Russians among this group of patients, since it was long customary in that country for the Czar to be known to the masses as "the Little Father."

A few patients come to Washington only after they have previously sought without success to obtain "justice" from their city, county or state officials. One such was G. F., a 51-year-old native of Poland who was taken into police custody at the White House when he demanded to see the President. This patient had been married but was separated from his wife several years previously. He had traveled from the east coast to the west coast several times, holding no less than 40 different jobs—usually as a baker. Eight years before his hospitalization he began studying astrology. Soon after this he began seeing multi-colored lights and began hearing imaginary voices which claimed to come from members of the Ku Klux Klan and from Nazi followers of Hitler. They followed him wherever he went. Pictures of Christ were flashed on his work-bench and he heard the voices of God and of Christ. His life was threatened. He left Oakland, California, where he had been working, for another city. The voices followed him and put an apparatus on his car which shifted his gears for him and made him speed up while in slow-going city traffic, and also made him go backward when he wanted to go forward. As soon as he arrived in the city he reported all this to the District Attorney there who advised him that this was a matter of national importance and should be reported to the federal authorities. He thereupon came immediately to Washington to present this information to the President in the interest of and for the protection of the United States Government and the American people.

In a considerable proportion of these cases the development of the delusional system

which eventuates in the patients' coming to Washington seems to have a readily apparent function of compensation. Several cases of this type may be cited briefly.

A. B. was a 53-year-old, uneducated Russian earning a precarious livelihood as an unskilled laborer in Chicago. He had no fixed address, was unmarried, had no relatives in this country and no friends. He spoke English with a marked accent. A few months previously he had developed the idea that "the government" owed him \$51,000 as some sort of relief payment. He heard people on the street talking about this and, although he could not read, he saw people in public places reading about it in newspapers. He decided that the only way that he could collect this money was to come to Washington for it himself. This he did, but was taken into custody almost immediately on his arrival after he had gone to the office of a senator at the Capitol and made a vigorous demand for his money.

W. S. was a 35-year-old native of New York who had never known his parents and had been raised in an orphanage. He had never been very bright at school nor had he been very ambitious. He left the orphanage as soon as he was old enough to be permitted to do so. For several years he made an indifferent, shifting occupational adjustment as a laborer. He had no relatives and few friends, no contacts with the opposite sex. He drank frequently when he had the money. For five years prior to his hospitalization he had been a hobo and a bum, riding the freight cars, living in empty houses, depending on handouts. Finally he wrote a letter to the President, telling him that he was coming to see him and get his help in obtaining employment. An agent of the Secret Service met him at the bus station and took him into custody.

A. H. was a 19-year-old mental defective from Ohio whose face had been grossly disfigured in childhood by a carbuncle. His mother died when he was a year old and his father placed him in an orphanage. He remained there for several years but, because of his inability to adjust there, his father was requested to take him out. He then went from the home of one relative to another. Frequently he would wander away for weeks at a time and no one seemed to care. Once or twice he was able to get a job, but he was able to hold it for only a few days. He had no contacts with members of the opposite sex. He finally hitchhiked to Washington to see about getting a patent for a "radio-controlled airplane invention." He had many other inventions of revolutionary importance, including a radio device which could control guns, tanks and airplanes from a distance and which would thus enable him to conquer the world. Another was for a Diesel engine which developed sufficient power to drive a 40,000-ton ship across the Atlantic Ocean in 24 hours. He was taken into police custody within a half-hour of his arrival in Washington.

G. E. C. was a 23-year-old farm boy from nearby Maryland. His father wrote of him in a letter to the hospital, "From a small boy he was anxious to be an aviator, which idea we have discouraged and insisted on him staying on the farm. Yet he does not like the work (and) only stayed through love for us in our declining years." The boy was described further as being quiet, bashful, shy, ill-at-ease, especially with the opposite sex. A month before his hospitalization he had built a windmill on his father's farm. He then developed the idea that he could generate large quantities of electricity by means of windmills which he would bring to the United States from the South Pole where, he claimed, they were being manufactured. He came to Washington to see the President about this invention because he believed it would change the destiny of the nation.

Meager though the accounts may be in most of these cases, one finds nevertheless the story of frustration, unsatisfied ambition, the wish for security and freedom from want, the desire for love and affection. Over a period of years these unsatisfied needs exist, and remain unsatisfied. The trip to Washington and to the White House or other government office is only the culmination of a process. "The delusion is not the disease but merely one expression of the disease."

There will perhaps be no controversy over the statement that the type of symptomformation seen in this category of patients is compensatory in its purpose and function. The difficulty is in determining where the process begins. These patients are, in general, a pitiful lot. They are frequently of foreign birth or extraction, without friends

or family, well along in years, wanderers, unemployed, and completely unaware of the abnormality of their ideas and behavior. One may search the stories of their lives without finding much cause for happiness or satisfaction. The recurring theme in their life histories is that of frustration, loneliness, failure. One might propose that such a state of affairs is incompatible with a so-called "normal" mental adjustment and that these psychoses develop then in compensation for this unsatisfactory state. Still, the question occurs, Why have these persons failed at their working and social adjustment? Is there any common factor which may be presumed to have initiated the chain of events which ultimately leads to their coming to Washington and to Saint Elizabeths Hospital? This, of course, opens up the question of the psychopathology of paranoid psychoses in general. In this connection one cannot fail to be impressed with the poor heterosexual adjustment made by most of the members of this group of 53 patients and to recall the Freudian claim that paranoid symptoms arise on the basis of an inadequate sublimation of the homosexual stage of psychosexual development. I realize that some will say that the sexual life of these patients is merely one phase of their maladjustment—co-equal in significance with their poor occupational adjustment, for instance. However, I can only pose the question (of psychopathogenesis)—I cannot answer it.

THE PSYCHOSOMATIC INTERRELATIONSHIP OF UTERINE RETRODISPLACEMENT AND PROLAPSE TO NORMAL AND PSYCHOTIC WOMEN¹

HARRY C. LEAVITT, M. D., KANKAKEE, ILL.

An example of a somatic condition which is, in most cases, purely of a functional nature, and present in psychotic and non-psychotic women, is uterine retrodisplacement, including uterine prolapse. The latter is an end stage of retrodisplacement, according to Curtis(2).

Although the literature is replete with medical concepts of psychogenic functional disturbances of the female genitalia, very little mention is made of psychogenic influences on uterine position. Much has been written of psychosomatic components involved in malposition and atonic conditions of other viscerae, as reviewed by Dunbar(1). However she mentions only desultory references to pelvic organs, such as the condition of "prolapse without prolapse" which is a psychogenic sensation described by Walthard and Graefe. A. Mayer's explanation, as summarized by Dunbar, is that the sensation is caused by hyperemia of the uterus with consequent pressure downwards or a decrease in the tonus. It is "a sort of readiness of the vagina to receive or expel something, this being experienced as gaping of the introitus." Another reference was made to Rickman(3) who described a case of uterine prolapse, the psychoanalytic explanation being that the weakness of the pelvic floor and uterine ligaments denoted that the genital stage had not been reached or maintained. In other words, that loss of tonus in these structures was a sign of "degenitalization."

The purpose of this paper is to present the relationship of malposition of the uterus to functional psychoses, as compared with the same condition in non-psychotic women. Also an attempt will be made to point out the psychosomatic implications. Cases used in this report were selected from the functional psychoses group because it was felt that the soma of this class reflected the psyche to a more dynamic extent than that of women with symptomatic psychoses.

¹ From the Kankakee State Hospital, Dr. G. W. Morrow, Acting Managing Officer.

A survey was made of the gynecological files of the Kankakee and Chicago State Hospitals. The women in these institutions, in most cases, had been examined by at least two gynecological consultants, and many by three or four residents at various times. Only those cases were selected where two or more clinical entries agreed as to degree of retrodisplacement and prolapse. Also, cases were not used which failed to meet the following criteria: (1) fifty years of age as the maximum; (2) no associated pelvic pathology; (3) all retrodisplacements and prolapses to be classified as at least of second or third degree severity. This requirement was established to eliminate the doubt as to diagnosis which a first degree type might have entailed.

The survey yielded a group of 328 psychotic women with retrodisplacement and 24 cases of prolapse. All were classified as to parity, the tertiparae or more being placed in a single group (Table 1).

It was found that dementia precox types presented the greatest proportion of prolapse to retrodisplacement. The total of 288 precoxes yielded a 6 per cent incidence of prolapsed uteri. The combined totals of the four other types of functional psychoses showed an incidence of prolapse which was only one and one-half times greater, that is, 9 per cent. Of considerable interest was the fact that, although not tabulated, approximately 95 per cent of the precoxes were classified as hebephrenic, whereas the average census of the latter in state institutions as mentioned by Sadler(4), who quotes the result of a recent Massachusetts study of 3184 cases, is 52 per cent. The psychosomatic significance of the foregoing data will be referred to later in the paper.

In view of the fact that parity definitely affects uterine position, according to Curtis(2), and that the incidence of retrodisplacements in parous women ranges a bit more than double that in nulliparae, it was felt that a study of the comparative inci-

dences of retrodisplacement and prolapse, in nulliparous non-psychotic and psychotic women would offer a more comprehensible contrast.

Although the criteria by which psychotic women were selected resulted in the rejection of a large number who had retrodisplacement or prolapse, the results were pronounced when contrasted to data on non-psychotic women published by various investigators. Posterior displacement was present in 63 per cent of 328 psychotic nulliparous subjects (Table 1). Findley(5) reported 39 per cent of 480 non-psychotic women; Dann-

which serves to keep the anterior abdominal wall of the uterus in contact with the bladder. There is much evidence in both groups of women who have retrodisplacement or prolapse of other manifestations of deficient tissue—support such as scoliosis, enteroptosis, and poor muscular tonus.

Although approximately 90 per cent of the women in the functional psychoses group consisted of dementia precoxes and "psychosis with mental deficiency," conditions well known for the preponderance of regressive physical stigmata, it must be kept in mind that for the most part such stigmata

TABLE 1

INCIDENCE OF UTERINE RETRODISPLACEMENT AND PROLAPSE (IN PARENTHESIS) IN THE FUNCTIONAL PSYCHOSES

Functional psychoses	Nulliparæ	Primiparæ	Secundiparæ	Tertiparæ	Total
Dementia precox	164 (6)	42 (2)	26 (4)	38 (6)	270 (18)
Psychosis with mental deficiency	40 (4)	2	2	8	52 (4)
Manic-depressive	2	..	.. (2)	2	4 (2)
Psychosis with psychopathic personality	2	..	..	..	2
Paranoia and paranoid conditions .....	..	..	..	..	...
Total	208 (10)	44 (2)	28 (6)	48 (6)	328 (24)
Proportion of retrodisplacements	63%	13%	8%	15%	

reuth(6) found 19 per cent in 387; and Crichton(7) estimates a 15 to 20 per cent incidence (Table 2).

A more outstanding contrast from psychosomatic viewpoint was the fact that 42 per cent of 24 psychotic nulliparæ presented uterine prolapse. Findley(5), who reviewed only pre-menopausal normal women with prolapse, reported only 3 per cent of 60. Rongy *et al.*(8) reported a mere 1 per cent of 355 women (Table 2).

When the uterus is in normal position the ligaments act merely as guy-ropes, according to Stacy(9), and not as means of suspension. The organ is maintained in normal position by the proper tone of anatomic supports, elasticity of uterine musculature, an intact pelvic floor, and by intra-abdominal pressure

appear when regression proceeds to very low psychic levels.

Functional changes in body mechanics such as result in scoliosis, enteroptosis, marked uterine retrodisplacement and uterine prolapse are the result of atonia of supporting structures. Psychogenetically determined dysfunction of the autonomic nervous system may well be the cause of abnormal atonia. Dunbar(1) aptly points out that changes in muscle tonus, smooth or skeletal, are among the most frequent manifestations of psychic mechanisms. It might be added that a psychosomatic study underway of rectal prolapses suggests similar psychodynamics as those resulting in visceroptosis.

Physical mechanisms of visceroptosis are

well understood, and a presentation of the various concepts of enteroptosis and its psychogenic components would make a chapter in itself. The obvious consequence of a general hypotonus is enteroptosis, and the psychic correlate of the somatic state is a helpless giving up, a flight from life, a sort of "letting go." There appears no valid reason to suppose that ptosis of pelvic organs in women should not be subject to the same psychic factors that cause the stomach, kidney, colon or any other viscus to "drop."

As previously noted, the comparative incidence of prolapse, an end result of a pro-

the ultra in regressive phenomena and resulting, through dysfunction of the autonomic nervous system, in somatic atonia, was found to present the highest incidence of functional uterine ptosis among the functional psychoses. Also, in view of the fact that similar evidence of a like autonomic dysfunction is present in many non-psychotic women, it is suggested that functional uterine ptosis, which includes retrodisplacement or prolapse, as well as other forms of atonia, may arise from psychic constellations bearing intimate relationships to the psychodynamics of hebephrenic dementia precox.

TABLE 2

COMPARATIVE INCIDENCE OF UTERINE RETRODISPLACEMENT AND PROLAPSE IN NULLIPAROUS PSYCHOTIC AND NON-PSYCHOTIC WOMEN

Source of data	Total retrodisplacements including prolapses	Retrodisplacements			Prolapses		
		Total	Nulliparæ	Percentage of nulliparæ	Total	Nulliparæ	Percentage of nulliparæ
Functional psychoses ...	352	328	208	63	24	10	42
Findley	540	480	189	39	60 *	2	3
Rongy, <i>et al.</i> .....	...	...	...	...	355	4	1
Dannreuth	387	387	72	19	...	...	...
Crichton .....	...	...	...	15 to 20	...	...	...

* All in this group were pre-menopausal women.

found atonia of uterine supporting structures, was found to be 6 per cent in the dementia precox group, in contrast to 9 per cent of four other psychiatric types of functional psychoses. This demonstrates that uterine prolapse is most common in dementia precox.

The hebephrenic form, which is a functional mental disease tending to the most profound regressive changes, showed a 95 per cent incidence of marked retrodisplacement and prolapse. In view of the regressive tendencies of this mental disease it is apparent why this particular kind of functional psychosis should be outstanding in the frequency with which physical manifestations of a "letting go" and flight from life should appear in the form of atonic changes. It would be of great interest to study in hebephrenics the association of other visceroptoses with uterine ptosis.

The conclusion drawn from this study was that hebephrenic dementia precox, typifying

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MOONLIGHT AND NERVOUS DISORDERS

A HISTORICAL STUDY

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The belief in the effects of the moon on the human mind dates from ancient times and has survived rather obstinately. The following little experience will serve both as a sample and as evidence of how alive this belief is to-day, in our midst.

Our little party was standing on the terrace of the suburban home, admiring the yellow disk of the moon which was shining bright and full from a cloudless summer night sky. Suddenly our young hostess exclaimed, "Oh dear, I forgot to pull the shades in Tommy's room!" and, explaining, she added, "The poor child has his bed right near the window; the moon must be shining right on his face." Later, when she returned, someone made a sceptical remark as to the alleged harmful effect of the moon on the sleeper, but our hostess stood firm in her conviction, and two or three of the guests, both men and women, spoke up in her defense. "No, it is quite true," said a middle-aged businessman from a midwestern city, "to have the moon shine on your face when you sleep, is bad; particularly for children. It gives them bad dreams and nightmares, and I have heard that some people with a delicate nervous system even become insane."

So, it appears, the belief stands firm, here and to-day; and in the following pages it will be attempted to examine into its origins and into the possible factual evidence. The moon's effect on psychic processes, however, is only one of its many presumed influence; and although not quite within the realm of this study, it might prove interesting to begin with brief mention of some of the other aspects of the problem.

In the primitive and ancient worlds the importance of the moon, as many historians believe, often surpassed that of the sun. The universal adoption of the 'month' and its subdivisions as a measure of the passage of time bears witness to this assumption. Everywhere, with practically no country excepted, the moon was held to have vast influence on the whole of organic life, either directly, or

indirectly, by acting upon the physical phenomena on our planet. Of the latter, the most widely discussed relation is that between moon and terrestrial magnetism on the one hand and, terrestrial magnetism and atmospheric conditions on the other, while the influence of atmospheric conditions, in turn, on certain bodily and psychic processes has been given exhaustive attention at different times. Another assumed indirect influence of the moon on organic processes is based on Grabley's work, who in 1910 reported that during full moon the contents of the atmosphere in "radium emanation" was distinctly increased, while a drop occurred at the time of the new moon.

The close relation between the tides of the seas and oceans was recognized early. The alternate rising and falling of the surfaces of large bodies of water which, as we know, depends chiefly upon the changing phases of the moon, may have an important influence on certain aspects of organic life. Charles Darwin, in his *Descent of Man* (1871) suggested that early in zoological evolution such an oceanic tidal element was a potent condition of life.

So has the influence of the moon on certain marine animals recently been proven beyond doubt. Such an influence was already known to the ancient writers, notably Aristotle and Pliny the Elder. They frequently mention the changes in certain molluscs, crabs and sea urchins, coinciding with the changing phases of the moon. In our time this fact was first clearly established for the Palolo worm, *Eunice Viridis*, of the South Seas. In 1923 the English biologist Fox, in a remarkable paper, demonstrated that the reproductive cycle of certain marine animals coincided exactly with the cycle of the moon. Other investigators followed, among them Ranzi, in 1931, for the *Platynereis Domerilii* worm, and Russell-Yonge, in 1936, for the common oyster.

Fox showed that the gonads of these animals are at their greatest bulk, ovaries

and testes filled with eggs and spermatozoa, just before full moon, and are spawned into the sea as soon as the moon is full. The shrunken gonads then gradually fill again with ripening sexual products to be shed at the next full moon, throughout the breeding season. This relation between sexual cycle and moon has been carried into higher species and even has been applied to man. Certain nocturnal insects are influenced in many of their activities by the changing phases of the moon, as Williams (1927) and Hora (1936) have shown. In this connection the recent experiments of Bissonnette, Baker-Ranson and others may be recalled. These authors showed that the sexual function, particularly the periodical return of the estrus, in most animals is directly dependent upon the amount of light to which these animals are exposed, and that by varying the amount of illumination definite changes in their estrus can be obtained. The light of the moon, although much weaker than that of the sun, may nevertheless suffice in conditioned organisms.

In man the periodicity of the sexual cycle is preserved in the phenomenon of menstruation. The relation of the menses to the lunar cycle was already assumed by the ancient scientists, such as Aristotle, Empedocles, Celsus and Galen. The Greek word 'katamenia' means 'by the moon,' and the Latin term 'menses' likewise refers to a period measured by the moon's course. The Danish physiologist Arrhenius, in 1898, analyzed 12,000 menstrual periods and claimed to have found a certain relation between the occurrence of menstrual periods and the sidereal moon cycle (27.3 days). He thus confirmed the claims of Hannover who had conducted similar analyses twenty years earlier. Guthmann and Oswald, in 1936, investigated 10,000 women with regular menstrual periods, and reported that more menses began with the full or the new moon than at any other time. Gunn and Jenkins, however, in 1937, in their series of 10,000 cases found no relation between menses and lunar cycle. Also for human males a lunar sexual cycle has been assumed by various authors. Nelson, in 1888, asserted that he had found a 28-day sexual period in men. Perry-Coste and von Roemer observed that heightened sexual activity in men coincided with

a primary maximum at the time of the full moon, and a secondary one with the new moon.

After this excursion into general biology let us return to the human mind and its disorders. From the oldest times 'lunacy' (from the Latin luna=moon) was closely associated with the moon, both in etiology and clinical manifestations. The origins of this belief, so widespread and persistent, lose themselves far back in ancient history. Both the Old and the New Testament mention the moon in connection with mental derangement. Later this relation became a commonplace. Plutarch, in the first century, said, "Everybody knows that those who sleep outside under the influence of the moon are not easily awakened, but seem stupid and senseless." Pliny the Elder asserted that the "moon produces drowsiness and stupor in those who sleep under her beams." And even before their time Hippocrates had written, "As often as one is seized with terror and fright and madness during the night, he is said to be suffering from the visitation of Hecate (moon goddess)."

Novelists and poets have also made frequent mention of this belief. Charles Dickens created the term 'a mooner,' signifying "one who wanders or gazes idly or moodily about as if moonstruck." Milton, in *Paradise Lost*, spoke of

"Demoniac frenzy, moping melancholy,
And moon-struck madness."

Byron, too, used the word 'moon-struck.' T. Adams, English writer of the 17th century, mentions 'a moonsick head,' and Ben Johnson 'the moonling.' Shelley spoke of 'moon-madness.' Richard Brome, in *Queen and Concubine*, blamed a 'moon-flaw' for an exalted condition of one of his heroes. Shakespeare repeatedly mentions the perturbing influence of the moon. Othello after the murder of Desdemona, exclaims

"It is the very error of the moon,
She comes more near the earth than she
was wont
And makes men mad."

In *Twelfth Night*, Olivia says,

"Tis not that time of the moon with me
To make one so slipping in dialogue."

In *Antony and Cleopatra*, Enobarbus addresses the moon thus,

"O Sovereign Mistress of true melancholy. . . ."

In *As You Like It*, the passage occurs,

"At which time would I, being but a moonish youth, grieve, be effeminate, changeable, longing and liking."

There actually seems to be no country or culture where the belief in the moon's effect upon the human mind has not prevailed at some time or other, and frequently still does. "It is dangerous to sleep in the moonlight," say the French peasants. Or, "It is not well to gaze fixedly at the moon," goes a saying among the Bedouins. Or the German country people think that "When the moon shines into the window, the maid breaks many pots."

Physicians, particularly during the past two centuries, shared wholeheartedly into this belief. The French psychiatrist Daquin, in his book on mental disorders (1791), said, "It is a well established fact that insanity is a disease of the mind upon which the moon exercises an unquestionable influence." In Italy the famous Cesare Lombroso discussed the moon's effects on mental illness at great length. In Germany the psychiatrist Koster, in 1882, reported on his lifelong investigations of many hundred cases of periodical insanity, and by means of statistical analyses tried to prove the disease's close relation to the different phases of the lunar cycle.

In the 18th century these beliefs had, as it were, been legalized, when the great English law expert Sir William Blackstone defined, "A lunatic, or *non compos mentis*, is one who hath . . . lost the use of his reason and who hath lucid intervals, sometimes enjoying his senses and sometimes not, and that frequently depending upon the changes of the moon."

In the medical and legal literature of that time a distinction was often made between the 'lunatic' and the 'insane.' Insanity was a chronic and hopeless condition, in many features resembling our modern conception of dementia, and those suffering from the condition were utterly irresponsible in a legal sense. The lunatic, on the other hand, had 'lucid' intervals during which he was accountable for his acts. The moon exacerbated the lunatic's condition. "Mad men and eccentric people in general are at their worst when the moon is full," was a generally accepted dictum.

This attitude frequently found practical application in the treatment of patients in mental institutions. In Britain the inmates of the Bethlehem Hospital were bound, chained and flogged at certain phases of the moon, "to prevent violence"; and this custom was abolished only in 1808, by Haslam. But as late as 1936 George Sarton, editor of *Isis*, could report that when he was shown around in an insane asylum in the West Indies, the guard mentioned that the patients usually were easy to handle, except at the time of the full moon, "when special precautions have to be taken in order to restrain them." In this country Benjamin Rush, commonly called the father of American psychiatry, had the attendants at the Pennsylvania Hospital keep accurate records to find out whether the insane patients became more excited or their condition aggravated during the different lunar phases. He found "few cases." In Massachusetts, at the Worcester State Hospital, similar records and statistics were compiled at the beginning of the last century, and some positive conclusions were reached.

Nothing was more natural than to extend this assumed relation between moon phases and 'periodical madness' into other fields of psychopathology. What laws regulate the periodicity of the dipsomaniac spree? Does the pyromaniac set his fires at random? Is the periodical swelling of the suicide statistics a freak? What laws govern the periodical return of epileptic attacks in certain individuals? All of these conditions, and others more, have at some time or other been brought into relation with the changing phases of the moon.

Dipsomania, or periodical alcoholism, was investigated first by Cramer, who almost 100 years ago cited his famous case in which violent paroxysms of intemperance occurred regularly every four weeks at the new moon. Most, a psychiatrist of the same period, reported similar cases. Other instances can be found scattered in the literature. Laycock's case (1843) of intolerance to alcohol at every full moon in a patient otherwise well accustomed to alcohol, deserves special mention.

Pyromania, or the urge to start fires, has occasionally been observed to have a relation to the phases of the moon. Thomas P.

Brophy, head of the Bureau of Fire Investigation in New York City, remarked a few years ago that during a period of several years more incendiary fires occurred when the moon was full than at any other time; and on bright moonlight nights he and his deputies have found it expedient to be more alert than ever (Trapp). In another newspaper report, a number of years back, it was said that authorities in a township not far from New York were recently seeking a firebug "whose madness apparently came from the moon," because each time the moon reached the first quarter, some major structure in the town was burned (Stahl).

Suicides, in their statistical relation to the lunar phases, were investigated by Chereau, who several decades ago analyzed a number of suicides occurring over a period of several years. He found that more of them had occurred at the time of the full moon than at any other time, but he conceded that nothing definite could be concluded from his study.

Epilepsy, of all nervous disorders with periodical manifestations, is the disease which most frequently has been brought into direct relation with the moon. Already, in the Bible, Matt. 18, Vers. 3, says, "A person falling oft into the fire and oft into the water, it is said, is affected by the moon." Aristotle believed that children suffer more from epileptic attacks when the moon is full. Galen said that the moon governs the cycle of the convulsive seizures of the epileptic. Lucian, a second century sophist, tells a story in which a girl could not find a husband, "because she had fits with the waxing moon." During the Middle Ages no clear dividing line was drawn between epileptic and hysteroid attacks, but the effectiveness of the moon in bringing about the attacks was generally accepted. As an example Mead, a British army surgeon, in 1746, wrote, "I remember that during the last war with France I had to treat this disease [epilepsy] in many young naval officers who contracted it during the great mental excitement induced by storm or battle. The power of the moon was so greatly felt that it was not difficult to predict the recurrence of the attacks at the approach of the new or the full moon." Pitcairn, another physician of

that period, wrote, "I know many women whose epileptic attacks occur at the change of the moon." Other cases were reported by Bruce, Sauvages, Pison, Bartholini and others. And only a few decades ago, in 1898, Arrhenius analyzed 9000 epileptic attacks observed in asylums, and concluded there was a definite relation between the occurrence of the fits and the phases of the moon.

Interesting are the observations which the Swedish scientist Berzelius, one of the founders of modern chemistry, made on himself and later (1901) reported in his autobiography. "Since my 23rd year," he wrote, "I had been tormented by a periodic headache, commonly called migraine. At first this occurred at long intervals, but soon showed itself twice a month, falling with the greatest regularity on the day when the new or the full moon occurred, and lasting from 8 a. m. to 8 p. m." His condition lasted for more than 14 years, but he only became aware of the coincidence with the lunar cycle when at one time he was travelling abroad and his migraine changed rhythm somewhat to coincide with the different lunar calendar prevailing in that country.

It is a common belief that moonlight does not affect so much 'the grown-up and the healthy,' but rather the tender nervous system of young children and that of 'susceptible, poorly balanced' individuals. King, an American ship's surgeon, used to observe the crews asleep on deck, exposed to the "bright full moon of the tropics," and never found these big, vigorous men affected in any way. But, as Stahl reports, Brazilian native mothers hide in the thicket after they have delivered a baby, to prevent the moonlight from reaching the newborn. In the waking state, however, children react in a characteristic manner to the moon. The psychologist Slaughter, in 1913, reported the following interesting observations; "It's [the moon's] presence makes small children, three to eight and older, feel "nice," "happy," "jolly," "splendid," "good," and rarely "sad." They jump, shout, run, laugh aloud, lose their normal sleepiness, are usually good-tempered, and often excited to the point of abandon. Only older children gaze and languish." As to the 'susceptible adults,' already Paracelsus in the 16th century had

noted who be at oned

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noted that "the *spiritus sensitivus* of a man who is weak and offers no resistance may be attracted toward the moon and be poisoned by its evil influence."

Such an 'attraction toward the moon' occurs in a peculiar pathological condition, to which certain individuals are subject at times, and which is called 'moon walking.' Moon walking, a form of somnambulism, has been observed and described in the medical literature by many reputable authors, and although in recent years few such observations have been made, there seems little doubt that the phenomenon exists. The psychoanalyst Sadger, in 1920, gave the following description:

Under the influence of the moon the moonstruck individual is actually enticed from his bed, often gazes fixedly at the moon, stands at the window or climbs out of it, with the surefootedness of the sleep walker climbs up upon the roof and walks about there, or, without stumbling, goes into the open. In short, he carries out all sorts of complex actions. Only it would be dangerous to call the wanderer by name. . . . He would awaken, collapse, and fall headlong with fright if he found himself on a height.

The condition is very similar to both hysterical and hypnotic somnambulism, except for its periodical return with the presence of the full moon. Moon walking has been most frequently observed in adolescents, particularly during the puberal period. In women, according to popular belief, it will disappear with the first child. Krafft-Ebing, the well-known psychiatrist of the last century, called the condition 'a symptomatic manifestation of certain nervous diseases.' Spitta, another psychiatrist of that period, denied the existence of moon walking altogether, and believed that the moon was accidentally present when these individuals had attacks of ordinary sleep walking.

The first clinical case of moon walking described in modern times is that of Ebers, who in 1838 reported on a boy of 11 who had "paroxysms of moon walking" with every full moon. Sadger's cases mostly suffered from definite psychoneurotic disorders. One of his patients, a young woman, gave the following account of her mother's moon walking: (The mother was described as a 'tuberculous, sadistic and hereditarily stigmatized woman').

Besides, the moon exercised a great power over my mother. Since the house in which she lived was low and stood out in the open country, and there were no window blinds, on bright moonlight nights the moon shone into the farthest corner. In the corner stood a box in which were a number of flower pots, figures and glass covers. Upon this box she climbed, after she first had taken one object after another and placed them on the floor without breaking anything. Then she began to dance upon the top of the box, but only on bright moonlight nights. Finally she put everything back in exactly the same place to a hair's breadth and climbed out of the window, but not before she had removed there a number of flower pots out of the way. From the window she reached the court, where she rambled about, climbed over the fence and walked around at least one hour. Then she went back, arranged the flowers on the window in exact order and—could not find her way to bed. There was always a scene the next day if grandmother had been awakened in the night.

Sadger noted that it was always the full moon, never the half moon, or the sickle, which attracted the sleeper. He held that the somnambulist stared at the moon, because its round sphere awoke sexual childhood memories of the woman's (mother figure's) body, her breasts or her buttocks. It is reported in the literature that the anatomist and physiologist K. F. Burdach from his tenth to his thirtieth year had occasional attacks of moon walking. On analyzing his autobiography, it was found that he had had a strong mother fixation.

Interesting is Sadger's case of a 23-year-old woman who reported,

Upon the wedding journey my husband did not want to sleep by the open blinds, and I did not want to sleep anywhere else so that the moon could shine upon me. I could never sleep otherwise, was very restless and it was always as if I wanted to creep into the moon. I wanted, so to speak, to creep into the moon out of sight. (Phantasy of mother's body, represented by the moon disk?)

The conception of the moon as The Great Mother is found in a number of older cultures. Most of the known lunar deities were females: the Babylonian Ishtar, the Asthoreth of the Phoenicians, the Phrygian Cybele, the Artemis of the Greeks, and the Diana of the Romans. A number of other races and cultures, however, considered the moon as a male and attributed considerable male sex powers to him. Such different peoples as the Eskimos, the Mongolians and the Polynesians believed that the moon often visited

their wives, that girls would become pregnant by staring long at the moon when it was full, or that the husband's function was merely that of breaking the hymen or enlarging the vaginal passage, while the moonbeam was the real spouse and fertilizer.

In this study have been gathered together a number of observations and opinions, scientific, quasi-scientific and otherwise relative to the influence of moonlight on biological processes and particularly upon human behavior. The report has been concerned mainly with recording. A dynamic interpretation of primitive beliefs and their survival in assumed symbolic forms might appear tempting if such interpretation could be based upon demonstrated rather than postulated relationship.

Observations such as those here cited indicate the vastness of human credulity, the painful social struggle toward a scientific attitude and the potency of prejudice, half-truths and ill-founded beliefs as factors in mental disquiet or ill-health.

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PSYCHIATRY AS A SOCIAL SCIENCE¹

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I

Even when psychiatry was still an inseparable part of somatic medicine, the Hippocratic, Galenic or Arabian physicians counted among the alleged causes of mental illness such factors as being in love, or disappointment in love, or failure in business. This last cause figured with increasing frequency as the commercial and industrial aspects of life acquired ever greater importance in our civilization. Today, not only the homegrown, so-called "common sense" thinker and not only the newspaper reporter, but many an average psychologist and psychiatrist credits the last economic depression with the alleged increase of depressive psychoses and suicides. It appears fairly certain that since time immemorial there has existed a tendency to explain certain mental diseases—in great part at least—on the basis of strictly environmental, sociological factors.

Today, as the world is in a state of war, we observe a more active call on the psychiatrist to play the rôle of a sociological adviser. When on occasion this appeal is made to the so-called clinical psychologist, it still means fundamentally the appeal to psychiatry, since the very adjective "clinical" infers that psychology alone is considered not fully competent to solve the problem, unless it is enriched with psychiatric knowledge. We call upon the psychiatrist to tell us something about "war nerves" or to help us with the problem of morale. This call continues to be made on the psychiatrist even though the freelance psychologist, as represented by journalists and writers, publicists and social scientists, still attempts to play the rôle of an independent and authoritative social psychologist.

There is no doubt that the psychiatrist is being looked upon with increasing frequency as a sociologist by virtue of his being a psychiatric clinician. He is called upon not only to tell us when a criminal is "insane," but

why a criminal is a criminal even when not "insane"—a purely psycho-sociological problem. He is called upon to explain to us various aspects of war and peace psychology, of morale and of public mental health, whatever that may mean. The consideration of psychiatric factors in social life grew out of the consideration of social factors in psychiatric conditions. As a result, we find that the social scientist is forced more and more to engage in psychiatric speculations; he therefore becomes an amateur psychiatrist. The psychiatrist, on the other hand, enters more and more into sociological speculations; he tends to become an amateur sociologist.

This double transgression on the confines of established scientific disciplines and the double incursion into a seemingly foreign field do not make for greater clarity in either field, unless one establishes with sufficient accuracy the true and fundamental points or planes of contact between psychiatry and social sciences. About fifty years ago the sociologist began to feel the need of psychological knowledge. Quite obviously, he could not see any substantial promise in the physiological psychology of Wundt. It is not easy to apply the study of the frog muscle preparation to such problems as revolutions, wars, state organizations, parliamentary quarrels, party politics or electoral reforms. Nor is it easy to derive much sociological wisdom from the manner in which the gastric juice drips reflexly from a gastric fistula. The sociologist, to satisfy the new needs of his discipline, had to create a special and speculative psychology of his own. The works of Durkheim and Tarde in general sociology and social philosophy, of Le Bon and Fouillée in mass and race psychology, are based on such a series of descriptive and speculative psychological excursions. Even the massive contributions of Lombroso and Ferri are not essentially different in this respect.

As time went on it became clear that while the sociologist had at his disposal an immense and valuable amount of material of psychological and psychiatric import, his contribu-

¹ Read at the ninety-eighth annual meeting of The American Psychiatric Association, Boston, Massachusetts, May 18-21, 1942.

tion to psychiatry seemed destined to be rather exiguous. On the other hand, the psychiatrist of the twentieth century soon discovered that his clinical studies, to be complete and to be more inclusively scientific, required the understanding of old and new and current social phenomena. When William A. White spoke of interpersonal relationships and of the fact that in psychiatry, or social psychology, one plus one does not make two but two plus some additional quantity, he not only formulated a keen observation but definitely established the principle that the individual as a psycho-biological unit—regardless of whether his mental state is normal or abnormal—never ceases to function as a psycho-sociological unit, and that it is the business of the psychiatrist to gain a thorough understanding of this psycho-sociological functioning. The psychiatrist, and I speak primarily of the clinical psychiatrist, thus found himself facing a difficult problem, much in the same manner as the sociologist of the end of the nineteenth and beginning of the twentieth century was faced with his baffling task. The psychiatrist was definitely in need of a social science, a sociology. Yet economics, purely descriptive sociology, law books, social philosophy, were of as little use to the psychiatrist as the gastric fistula to the sociologist. The psychiatrist had to produce a sociology of his own.

II

The task of creating a new sociology was formidable; it has not yet been accomplished. The psychiatrist had first to overcome some of the limitations which were deeply rooted in the very tradition of his psychiatry. The clinical experience of the psychiatrist had in the course of several centuries taught him a very convincing and what seemed at first a very discouraging lesson. He learned finally to classify certain mental phenomena; yet the greatest and most successful system, that of Kraepelin, brought the clinician no further than the recognition of the finer points of the art of classification. He soon became aware that to classify psychological phenomena does not necessarily mean to understand them; that perhaps it is most important first to understand what you are classifying, rather than to classify what you do not un-

derstand at all. The classificatory age of psychiatry tended to divide men all too sharply into normal and abnormal. The line of demarcation even the keenest classifier was unable to define. A blind alley had been reached. Doubt began to arise as to the validity of this sharp division. This doubt and even rejection of the prevailing trends was well expressed by the German psychiatrist Moebius. He studied the lives of great writers and philosophers from the psychiatric point of view, and characterized himself as a "superior degenerate"—as if to say: perhaps there is no real point of transition from psychological normality to psychological illness, or "degeneracy," as it was called in the middle and latter part of the nineteenth century under the influence of Morel.

Medicine and biology succeeded in evolving a fairly workable theory of man's biological development, but there was no workable hypothesis concerning man's psychological development. When it became clear that mental illness was not necessarily a primary or secondary impairment of man's intellect, but rather of his psychology—that is to say, of his total manner of facing the problems he has to meet, of his psycho-social functioning—then it was felt that pure biology alone would not answer most of our psychiatric queries. Nor would the pure psychology of the time, emanating as it did from study of the frog's spinal system or the dog's gastric fistula, or from the measurement of one's formal intellectual capacity, be able alone to tell the psychiatrist enough that was clinically instructive and therapeutically efficacious.

It was at this point, about thirty-five years ago, that psychiatry made a definite turn toward an independent hypothesis about the individual's psychological development. Such concepts as infantile behavior, regression, primitive reactions, were formulated with increasing clarity and workability. We all know that, in this, psychiatry is indebted to Freud. Regardless and in spite of the partisanship which characterizes every new discovery in the field of human psychology, these concepts percolated into clinical and theoretical psychiatry; the work on neuroses, done pre-eminently by psychoanalysts, and the work on schizophrenias, done mostly by

psychiatrists who saw fit to utilize the newer concepts, brought about a completely new orientation. The terms "social adjustment" and "social adaptation" became legitimate terms in psychiatry; the criteria of social adjustment, from the subjective point of view and from the point of view of objective behavior, became the major criteria of our clinical evaluations. The psychological history of the individual as a social being and the psychological history of society itself became the chief objects of investigation.

The psychiatrist, however, was still constrained to remain on his own. The sociologist and the anthropologist looked upon with suspicion and rejected with scorn the psychiatrist's incursions into social sciences. Freud's *Totem and Taboo* was considered a veritable imperialistic invasion of foreign territory; the majority of anthropologists rejected Freud's hypothesis of the primal horde with the same vigor as the abstract moralists and theoretical theologians rejected the hypothesis of man's primary unmorality and polymorphous perversity. The appellation, "armchair anthropologist," was knocked about with haughtiness and derision, much in the same manner as the confirmed Galenist treated a Paracelsus for his revolutionary, dynamic ideas in medicine. However, it is not a little encouraging, and historically it is quite as it always has been, to find that a quarter of a century after the publication of *Totem and Taboo* an anthropologist of note—who at the time of its appearance rose against it—found it possible if not necessary to recant many of his accusations and to accept some of the theories he had originally rejected in Freud's exposition.

Today the anthropologist and to some extent the sociologist work for the most part with the concepts and clinical findings, and even the clinical methodology, which the modern psychiatrist taught them to use. One should look upon this not so much as a contribution of psychiatry to modern social sciences, but rather as an extension of psychiatry into social sciences. One does not speak today of chemistry's having contributed to modern physics or astronomy, but rather of physics' and astrophysics' having become more and more chemical. What is true of social sciences is true even to a

greater extent of general psychology. In other words, the evolution of psychiatry for the past forty years presents such an extension of this discipline that it may be considered as legitimately including the social sciences and psychology. This does not mean, of course, that the social sciences and psychology are about to or should lose their identity as independent scientific disciplines; it means rather that while preserving and strengthening their identity they have become and will become more and more dependent on the findings of clinical psychiatry, and that clinical psychiatry does and should and will use more and more the scientific findings of anthropology and sociology.

It will very well repay us to be fully cognizant of this rather unique phenomenon in the history of sciences. It is unique because it is the first time in history that a purely medical discipline, curative in intent and methodology, became the source of transformation of a whole series of scientific disciplines. These disciplines, sociology and anthropology, were heretofore semi-speculative, semi-descriptive—at any rate, non-experimental. Criminology, as a part of sociology, was even more hampered by the fact that, in addition to the limitation from which sociology suffered, it was kept in the mold of legalistic tradition which, as far as crime is concerned, is still deeply rooted in the soil of seventeenth century formalism, abstract morality, and vacuous rationalism.

Clinical psychiatry is in the process of performing a true scientific revolution. It provides both sociology and anthropology with a new laboratory for the almost experimental verification of sociological and anthropological observations. The fantasies of the neurotic, the complex conceptual and instinctual life of the schizophrenic, the repetitiveness of psychological and behavior performances of all the neuroses and psychoses, the quiescent and stormy states of the catatonic, and the corresponding equivalents in the lives of so-called normal individuals abolished the artificial and imaginary line of demarcation between normal and abnormal and brought about a unitary view on the present and the past. The past, the remnants of which the anthropologist studies in the field, becomes understandable

only in the light of that past of man which is an active present in every neurotic and psychotic, intra- and extra-mural, and a passive present in every "normal" individual. Psychiatry, therefore, can be legitimately considered as having become the very foundation, if not even the substance, of social sciences.

It is extremely important not to overlook the fact that, while becoming the cornerstone of social sciences, psychiatry was able to perform its work and meet its responsibilities only by way of continuous clinical studies. This point cannot be overemphasized. It is highly important from the historical point of view. It was not abstract psychiatric theory that proved fruitful to social sciences, adding a few concepts to speculative social philosophy. The contrary

is true. Only because and in so far as psychiatry remained a strictly clinical discipline was it able to embrace the social sciences. In doing this, it performs a double task in the service of science; it relieves the social scientist from the necessity of producing an erroneous psychology of his own, and it relieves itself from following the erroneous path of producing a purely speculative sociology of its own. The future psychiatrist will have to know as much sociology and anthropology (he must already) as the medical man has to know chemistry and physiology. And while the chemist and physiologist may pursue their studies without undue interest in medicine, the anthropologist and the sociologist will only on rare occasions be able to dispense with true psychiatric clinical knowledge.

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REVIEW OF PSYCHIATRIC PROGRESS 1942

MILITARY, FORENSIC AND MILITARY PSYCHIATRY

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MILITARY PSYCHIATRY

The entrance of the United States into the war as an active participant has had a noticeable effect upon the literature relating to military psychiatry. The total volume of articles is about the same as last year (125 in this reviewer's list), but there is a rather wider range of topics, and a stress upon clinical experience is developing in the American articles. One finds such diverse topics as head injury, alcohol and war, use of the Rorschach test on soldiers, children's reactions to war (including juvenile delinquency), group therapy, neuroses, self-inflicted wounds, morale, general organization, and selection of personnel.

Volume 2 of *War Medicine* continues to carry numerous psychiatric articles. The November 1942 (No. 6) issue, for example, contains: Effort Intolerance in Soldiers; Chronic Exhaustion State in Test Pilots; Electroencephalographic Study of 275 Candidates for Military Service; Psychiatric Induction Examination; and Neuropsychiatric Examination of Recruits at Naval Training Station, Newport. The number of such articles in a journal of general military-medical interests is indication of the growing importance which is being attributed to psychiatry in the general field of military medicine.

Billings (*Army Med. Bull.*, No. 58, Oct. 1941) contributes an article on The Recognition, Prevention and Treatment of Personality Disorders in Soldiers. This article was circulated to all medical officers on active service in the Army at the time it appeared, and was written with the general medical officer in mind.

Helgesson (*U. S. Naval Med. Bull.*, 40: 80, No. 1, Jan. 1942) presents a comprehensive survey of military psychiatry, with particular reference to its development and possibilities. Porter (*Am. Jour. Psychiatry*, 98: 317, No. 3, Nov. 1941) gives a summary of the problems presented to the Army psychiatrist, based upon his long experience in

the Army. He presents a somewhat more extended account in *War Medicine* (2: 543, No. 4, July 1942).

Along clinical lines we find an article by Anderson (*Jour. Ment. Sci.*, 88: 328, No. 371, Apr. 1942) on Psychiatric Syndromes Following Blast. He reports eight cases, and discusses the literature fully. He presents evidence that the basic symptoms were due to a "structural cerebral lesion," possibly due in part at least to the direct effects of the blast wave. He urges the need of prompt psychiatric observation, and the need of further study of this important problem.

Duval and Hoffman (*War Med.*, 1: 854, No. 6, Nov. 1941) compare dementia praecox in civil and military life. On the basis of an extended experiment at Saint Elizabeths Hospital they conclude that the two types differ. Specifically, dementia praecox in military life is more apt to show an abrupt onset and a short and stormy course, with relatively rapid and frequent recovery."

Tredgold (*Jour. Ment. Sci.*, 88: 444, No. 372, July 1942) discusses Invalidism from the Army due to Mental Conditions. He enumerates some of the external factors which may operate adversely upon the soldier, and points out the urgency of suitable selective procedures—first, the rejection of unstable defectives and psychopaths, and the proper classification of those men who are accepted. As underscoring Tredgold, Hadley's very full account of An Experiment in Military Selection (*Psychiatry*, 5: 371, No. 3, Aug. 1942) should be carefully read. In this experiment, a group of 1750 registrants passed as Class 1-A by the local boards was examined carefully by a group of psychiatrists, this at a time when local boards were still making a medical examination. By the criteria of the group, only about 1/3 of the men passed by the local boards were considered fit for full military duty.

Brussell and Hitch (*Psych. Quart.*, 16: 3, No. 1, Jan. 1942) present a study of the

use of the Rorschach test on soldiers. They look upon the test as having use in differential diagnosis, especially as between neurosis and malingering.

The Josiah Macy Jr. Foundation has made possible a Preliminary Report on Children's Reactions to the War, prepared by Dr. J. Louise Despert. This volume of 92 pages presents a critical discussion of the literature, with a bibliography of 111 references.

Of other volumes, one should mention a symposium entitled War Medicine, published by the Philosophical Library, which includes articles on Malingering (Hulett), the Psychopath in the Armed Forces (Dunn), and Selective Service Psychiatry (Bullard). Goldstein's volume on After Effects of Brain Injuries in War (Grune & Stratton, 1942) presents the results of the author's long experience.

Of general philosophical interest is the republication by the William Alanson White Foundation of Doctor White's classic entitled Thoughts of a Psychiatrist on the War and After, originally published just after World War I. and long out of print. The volume is perhaps even more timely now than when it first appeared.

FORENSIC PSYCHIATRY, 1942

LEGISLATION

The literature in this field shows a continuing interest in the applications of psychiatry to law and vice versa; articles of interest are found in psychiatric and legal publications, dealing with such varied topics as adolescent offenders, probation, expert witnesses, parole success, traffic offenders, psychotherapy of criminals, and sterilization.

Hughes (*Psychiatry*, 5:187), in a brief but provocative article, suggests the abolition of the hypothetical question and that psychiatrists limit their testimony to a description of their findings. He cites a recent case in which a psychiatrist who stated that he knew nothing about "insanity" was sustained by the Court in his refusal to answer whether he thought the defendant "sane" or "insane."

Roche (*Jour. Crim. Psychopath.*, 4:145) describes the Pennsylvania Plan for fellowships in penal psychiatry.

In the field of sterilization, one article

(*Jour. Crim. Law and Criminology*, 33:163) discusses the invalidation by the U. S. Supreme Court of the Oklahoma law providing for the sterilization of "habitual criminals," i. e., persons convicted two or more times of felonies involving moral turpitude, but excepting certain types of offense, notably embezzlement. The Court found itself unable to sustain a law which might sterilize one who had committed larceny while sparing an embezzler, thus avoiding the necessity of passing upon the question of the inheritance of criminal traits.

But few legislatures convened during 1942, so that the grist of laws was small. New York unfortunately (Ch. 284, Acts of 1942) complicated considerably the procedure relative to inquiries into the sanity of criminal defendants. Virginia (Ch. 160, Acts 1942) widened the power of the state hospital board and authorized it to establish mental hygiene clinics. The Illinois Assembly passed a bill (House 631, 2nd Gen. Assembly) substantially improving and humanizing the procedure for committing the mentally ill. It is depressing to report that the Governor, on entirely legalistic grounds, vetoed the bill. A note in the Ill. Law Review (36:747) criticized the veto vigorously on legal and humane grounds, commenting as follows: "As a result of this failure to allow rational legal process to open the way to modern scientific treatment, thousands of families and thousands of victims of diseases curable under prompt treatment may have to suffer the 'tortures of the damned.'" It is at least of some encouragement to find so enlightened an attitude toward commitment laws expressed in a legal journal!

ADMINISTRATIVE PSYCHIATRY

Those who fear that administrative psychiatry may be displaced from publications and meetings by clinical and other types of papers may take heart from this year's grist! During the current year no less than 42 articles have appeared in the literature which may be classed as dealing with this field. The range of topics is wide—recreation and occupational therapy, family care, tuberculosis in mental hospitals, food service, effi-

ciency of ward personnel, suicide, mental hygiene programs, and educational and social functions.

Blackman (*Psych. Quart.*) discusses ward therapy, a new method of group psychotherapy, as practiced at an Iowa State Hospital. Unselected groups of patients are engaged by the physician in a friendly discussion of their cases, with reportedly beneficial results to patients and ward personnel. The method is suggested as a means of utilizing guidance in the face of increasing scarcity of medical personnel. Jones (*British Med. Jour.*) reports on group therapy in a British hospital in which mild neurotic conditions are cared for. Satisfactory results are reported, particularly with reference to the men's attitude toward their disability and as shown by increased returns of patients to Army service.

Kubie (*Psychosom. Med.*) presents a de-

tailed and thoughtful article on the organization of a psychiatric service for a general hospital. He emphasizes that psychiatry cannot play the role of a specialty among other specialties, but must aim to coordinate its work with all of the others.

Kolb and Vogel report (*Am. Jour. Psychiat.*) on a questionnaire study of the use of shock therapy in 305 mental hospitals. They find that shock therapy has been widely adopted, with a tendency to drop the older in favor of the newer forms.

Humphreys and Howe (*Am. Jour. Psychiat.*) report the range of psychiatric material in the State school, and emphasize the importance of psychiatric acumen and of psychotherapy in schools for defectives and among the subnormal groups in the community—an additional argument for insisting on psychiatric administrators for institutions for the feeble-minded!

GENERAL CLINICAL PSYCHIATRY, PSYCHOSOMATICS AND PSYCHOMETRICS

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With most of the world at war there has been a considerable reduction in research in the biological sciences of which psychiatry is a part. Clinical investigations which would be normally completed or in progress during the past year have been interrupted or postponed altogether indefinitely, leaving many journals lean as compared with their former state. Foreign literature on clinical psychiatry, other than that coming from English and American controlled territories, is extremely scarce.

The minds of medical workers are now turned to problems created by the war situation with the result that there is a notable increase in the number of published articles dealing with psychiatric conditions in the armed forces and with the psychological effects of war on civilian populations; also the "shock" therapies still occupy a prominent place in the field of research and clinical work, both of which important developments are presented by other contributors to this review. It is of interest to note that about half of the total number of psychiatric reports deals with therapeutic endeavors.

However, there are some interesting clinical reports which fall within the province of this part of the review.

An attempt has been made by Carter(1) to discover the useful prognostic factors in several mental disorders, with special attention to the "adolescent psychoses." Mental disorders due to toxins, brain degenerations and traumatic affairs were studied as well as confusional states, manic-depressive reactions, schizophrenias and 78 cases of "adolescent insanity." A large number of individual factors such as heredity, environment, physique, personality type, nature of the onset of the disorder and the symptoms were studied and compared in a way that yielded information of practical value.

Studies on the manic-depressive psychoses were made by Fox(2) on 400 selected patients with affective disorders admitted to the Henry Phipps Psychiatric Clinic during a four year period "in an effort to clarify the nature and relative importance of the constitutional pattern." He concluded that the thymopathic or manic-depressive constitutional factor is only one of the dynamic ele-

ments in the condition, and, while playing a definite rôle, exerts an influence of a general nature. The patient's illness is better understood by studying the way in which all factors have been combined into a "personal constitutional pattern." Another study on the manic-depressive material of the Henry Phipps Psychiatric Clinic material was made by Rennie(3) as part of the follow-up project to ascertain the course and progress of former patients. Two hundred and eight cases, none of whom had received shock therapy, were included in the report which was prepared in a way that should serve as a valuable statistical basis for a comparison with therapeutic procedures and results obtained by the various shock methods. It is a definite contribution to the ever-present problem of prognosis.

The manic-depressive states occurring during later life have been investigated by Doty(4) of the Payne Whitney Psychiatric Clinic in an attempt to determine whether there were any characteristic features sufficiently prominent "to be of value in formulating concepts regarding etiology, psychological picture, treatment and prognosis." He emphasizes that the lengthening of the average life span is bringing into the foreground a number of psychological as well as physical problems in an older age group, with the pertinent inference that we shall have an increase in manic-depressive reactions appearing in and perhaps modified by the age factor.

The ever-important subject of prognosis of paranoid disorders was studied by Miller(5) who attempted to discover the relationship of prognosis to the type of onset, the variety of prepsychotic personality, the age of the patient, the fixity and type of the delusions, the environmental status, the marital adjustment, the patient's special ways of handling the problems of the psychosis, and the nature of the rapport with the physician. The strength of the patient's personal assets seemed to be the most important factor in prognosis. When these were adequate they "counteracted many indications of a bad prognosis." Moreover, "the patients who seemed to do best were those who, after improvement, could offer little explanation for their symptoms beyond admitting that 'something must have been wrong.'"

States of compulsive wandering (fugue states: porimania) were investigated by Stengel(6) to ascertain if there were any common etiological factors in these conditions irrespective of co-existing mental disease. The material consisted of 25 patients with various psychoses, among which were 10 with epileptic components. Some of the outstanding features revealed as common to the majority of patients were tendency to periodical mood shifts, disturbances in the environment in childhood, and disturbances in the child-parent relationship, particularly involving the parent of the opposite sex.

Lidz(7) has described the amnesic syndrome in three grades of severity limited to patients with memory deficit as the predominant feature and not a part of a "more sweeping disorganization." Passivity, confabulation, disorientation, loss of time sense and difficulties in altering the orientative set are the principal manifestations of the syndrome. "The hypothesis is offered that both retrogressive deficits and inability to deal with transient events can be understood as parts of the difficulty in freely evoking past experiences. Utilization of post-traumatic events is most seriously disturbed because they are not met by the background of past experience essential to full perception."

On the basis of the quality and structure of aggressive components, Schilder(8) classified the anxiety neuroses in three groups: one in which the aggression is directed against the love object as a whole, with the hostility not fully conscious; another type in which the hostility seeks a more far-reaching destruction; and the third in which dismemberment is clearly in the foreground. A differentiation from cases of obsessional neurosis and compulsions may be difficult but this article contains a great deal of thought-provoking observation and comment. Schilder and Levine(9) in a study of abstract art as an expression of human problems demonstrated that abstract forms and colors are closely connected with important specific contents. In obsession neurotics abstract principles in drawing are related to the basic motor drives of the individual, the arrangement of curves, straight lines, angles, borders, the nature of the contour, etc., have a deep meaning in terms of the fundamental

problems of aggression and defense. Personal problems of the patient may lead him to produce incidental abstract forms which he interprets as symbolic, but which, upon analysis, reveal a deeper meaning. In schizophrenics a simple form problem may be incidental to a very deep meaning and may represent a regression to the essentials of form principles.

Psychoanalysts are criticized freely for not publishing reports on the results of their therapy. A study by Knight(10) deals with this subject, and one might add that it should be read by the critics. The author has discussed and summarized the difficulties involved in reporting this type of material, and has made suggestions regarding the standardization of diagnostic criteria and criteria for evaluating the results of treatment. Judging from the results of the analyses of 952 cases, psychoanalysis is an effective therapy for the psychoneuroses, sexual disorders, and "organ" neuroses, and gives some promise of therapeutic aid in the more severe disorders.

In the field of psychosomatic medicine a comprehensive review of one angle of the total situation has been made by Hulbert(11) who stresses the fact that organic disorders may present themselves as psychological problems. His conclusions quoted here mention most of the principal points discussed, and, in fact, state the issues usually recognized and stressed as fundamental in similar articles. "In the diagnosis of any case with psychological symptoms, we must bear the following possibilities in mind. Disease by direct action on the nervous system may produce a psychological disorder. Disease is of itself a psychological stress, except where it provides an escape from difficulties; hypertension, for instance, often gives rise to an anxiety state. It is possible that psychological stress may cause some organic disorders, such as peptic ulceration. Lack of psychological balance may aggravate an organic disorder, such as pulmonary tuberculosis, or exaggerate organic symptoms and signs. Psychological disorders may present physical symptoms and signs such as hysterical paralyses. Finally, psychological and organic disease may be present independently in the same patient."

The practical aspects of management in

general medical situations in which psychiatric insight is essential were outlined by Daniels(12) as consisting of a negative physical examination to reassure the patient, the selection of the point at which an attempt should be made to give some insight into the emotional components, the exercise of judgment in encouraging the patient along the lines of mental catharsis, and finally the question of giving advice to those with personality disabilities. By means of the esophagoscope it was discovered that suggestions releasing the unpleasant emotions of fear, anxiety and anger produced esophageal spasm and narrowing of the lumen while pleasant suggestions caused a relaxation of this organ. This stimulated Faulkner(13) to undertake an investigation to determine whether these changes could be demonstrated also by fluoroscopic and x-ray examinations. He found that the changes could be observed directly with the esophagoscope, and indirectly with fluoroscope and x-ray. Because of the possibility of the co-existence of emotional functional alteration and organic disease in the same patient, he warns against a primary diagnosis of psychosomatic dysfunction until other causes of esophageal symptoms have been eliminated.

A particularly interesting study of 208 cases of duodenal ulcer was made by Morrison and Feldman(14) to correlate psychosomatic changes with the activity of the ulcer. A special pattern characterized by hypersensitivity, hyperirritability and hyperactivity involving the duodenum, the digestive tract as a whole, and the personality of the patient was noted. The psychosomatic features were remarkably similar throughout the group of cases, and it was thought that psychosomatic influences may possibly act as an etiologic factor in duodenal ulcer, as the general constitutional pattern often antedates the appearance of the ulcer.

Thompson and Corwin(15) seeking correlations between patterns of breathing and personality factors studied a group of 59 Harvard undergraduates, a group of Negro share-croppers in Mississippi, and a group of 25 mental hospital patients suffering from "chronic" schizophrenia. The breathing was recorded on a Roth-Benedict apparatus and the tidal air computed. The results showed that the Negroes as a group have a smaller

volume of tidal air and more regular breathing than the white subjects; that the schizophrenic patients also had these breathing characteristics. Normal persons sharing the breathing characteristics of schizophrenics were found frequently to have a "schizoid" personality. The authors state "It seems fair to say that the Negro, by his general passivity, intense imaginative tendencies, mounting often to frank hallucinations, religious manias and extensive suspicions and superstitions, tends toward the schizoid rather than toward the cyclothymoid type."

That leukocytosis is of frequent occurrence in patients with emotional disorders was demonstrated clearly by Milhorat, Small, and Diethelm(16) who observed 200 psychiatric patients for the types of reactions thus associated. Fear and panic reactions, depression with agitation, subacute and persistent anxiety states, excitements with elation and anger, were among the emotional reactions associated with an elevation of the white count in the absence of infectious processes or structural changes, although the leukocytosis could not be explained solely by the emotional element.

In the field of psychometric research there are a few publications of particular interest to the psychiatrist. Bennett(17) has described a technique for investigating the central areas of the personality in an experimental setting in which tasks are interrupted by various interpolated activities. Procedures, which are analogous to those of the Thematic Apperception Test and play technique, were utilized and the results discussed in the light of the reactions of normal and schizophrenic individuals. Hayman(18) published a two-minute clinical test for measuring mental efficiency in psychiatric disorders. He standardized the old and well known test of serial subtraction of 7 from 100 on a group of 433 normal persons and then applied it to 580 patients with a wide variety of mental troubles. It revealed a number of interesting responses and other facts worth consideration, and demonstrated its value as a readily applicable and reasonably accurate clinical test for measuring the degree of intellectual impairment.

Some contributions have been made to the ever-expanding body of knowledge gained by the application of the Rorschach test.

That abstract minded, generalizing persons report a larger number of "whole responses" in the Rorschach test is known to the specialists in this work and Sarbin and Madow(19) report, as a result of their studies that "the broader outlook of the person capable of the abstract attitude suggests a more flexible personality . . . one that can easily assume the rôle of the hypnotized subject . . . hypnotizability and the abstract attitude seem to be associated." These are tentative conclusions. According to Hertz(20) the Rorschach method is unquestionably successful in analyzing the personality of children as it permits an understanding of their "private worlds," it suggests therapeutic approaches in the abnormal types of children, and gauges the effect of treatment, in spite of the subjectivity of the scoring and a number of other features for which the method has been criticized. The author has made excellent recommendations for further development and application of the method along scientific lines. Brussel and Hitch(21) have described and discussed the Rorschach method in its possible application to the study of military personnel. Its diagnostic value in army psychiatry is emphasized in accordance with the results obtained in a series of cases studied at the Fort Dix Station Hospital, and Piotrowski(22) in the same journal has presented an extremely valuable comparative table of the principal Rorschach symbols with a discussion of their interpretation. This represents the current attempts to standardize the method as far as possible, to enable different workers to compare variations in technique and to have some basis for uniformity in recording reactions and thus in making interpretations and conclusions.

With a few exceptions Gestalt psychology has been neglected by psychiatrists, despite the fact that this type of experimental and theoretical approach has a great deal to offer to investigators in the field of psychopathology. Kiska and Knox(23) have emphasized three points as well as a number of other matters in a paper presenting fundamental Gestalt principles and how they are applied in psychopathology. This paper should serve as an orientation for those interested in Gestalt as a research method.

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ENDOCRINOLOGY, BIOCHEMISTRY AND NEUROPATHOLOGY

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Many researches of potential significance to psychiatry have appeared during the year but for the most part only those having an immediate relationship will be noted. Numerous studies have been reported on the several effects, potency and availability of sex hormone preparations—studies which demand the attention of psychiatrists who are using these materials. The bad name initially conferred upon diethylstilbestrol has been considerably mitigated by various studies which indicate that, in therapeutic dosages, it is devoid of true toxic properties—nausea and vomiting notwithstanding. A recently introduced derivative of pregnant-mare urine, consisting predominantly of estrone sulfate, is proving potent and reliable when given by mouth. It is apparently free of undesirable side effects.

Several articles have been published on the so-called male climacteric. In 7 of 8 cases reported by Goldman and Markham(1) relief of accompanying "effort syndrome" was obtained from testosterone propionate. The treatment was controlled by the use of placebos. Hamm(2) reported excellent results with the same preparation in 7 cases of angina pectoris. The reviewer (R. G. H.) has been privileged to see in manuscript other papers soon to be published which also indicate favorable results of this hormone in the "climacteric."

Danziger(3) analyzed the literature on 164 cases of probable involutional melancholia in women, treated with estrogens; 79 of these showed marked improvement or recovery. Of 29 apparently similar cases, treated with placebos, only 2 gave similar

favorable response. The author reported 7 new cases treated with diethylstilbestrol controlled with placebos; of these 5 recovered. The same author with Blank(4) collected 35 cases of probable involutinal melancholia in males who were treated with testosterone propionate. Of these, 21 recovered or improved markedly. In 5 new cases this hormone was given and controlled with placebos. Two patients recovered and 1 showed marked improvement. Davidoff and Goodpasture(5) have also reported encouraging results in 20 involutinals who were treated from 6 weeks to 3 months with testosterone propionate. Of the group, 13 (65 per cent) responded well as compared with a 46 per cent favorable outcome in a control group treated similarly but without androgen. The success of the treatment appeared to be inversely related to the severity of the psychosis. The suggestion is offered by Danziger that the varying results obtained with sex hormones in the melancholias are due to fundamental differences in the psychoses as well as varying dosages and potencies of the products used.

The favorable influence of androgen in psychoses is presumably due largely or wholly to its psychological effects. These are illustrated by Pratt(6) who reported the "extraordinary" case of a 32-year-old eunuchoid physician in whom methyl testosterone induced both physical maturation and much better personality integration. Apparently a necessary condition for such favorable responses is a pre-existing condition of hypogonadism. This fact presumably accounts for the relative infrequency of success in the androgen treatment of schizophrenia. This probability is borne out by the report of Sutherland and Hoskins(7) who treated a case of schizophrenia in a male eunuchoid. Various metabolic findings suggestive of coincident hypothyroidism were noted. Attempts to correct that condition by the use of thyroid medication led to marked excitability and elation, requiring cold packs. Subsequent treatment with methyl testosterone, supplemented by a subcutaneous implant of testosterone was followed by apparently complete recovery from the psychosis.

Further evidence of a relationship between schizophrenia and the sex hormones was

brought out by Ripley and Papanicolaou(8) who reported a comparative study of the menstrual functions in 221 subjects of schizophrenia (and of mood disorders). A tendency to ovarian inefficiency was noted with resulting lengthening or suppression of the menses. Amelioration of the psychosis was commonly accompanied by improvement of the menstrual dysfunction.

Although interest has somewhat shifted from the insulin-shock to the electric-shock method of treating schizophrenia investigators still continue to be interested in the relationship between insulin and the psychosis. Gellhorn and associates(9) have published evidence that in emotional excitement schizophrenics secrete more insulin than do normal persons although no difference is apparent when the test blood is obtained during quiescence. The authors interpret their findings as indicating relative predominance in schizophrenics of the vagus over the sympathetic centers in the reactions to emotion. Since the patients' own blood sugar is not commonly depressed during excitement it follows that some compensatory mechanism is brought into play. The existence of an anti-insulin factor in the blood of schizophrenics was claimed earlier in the year by Meduna, Gerty and Urse(10) who reported that such blood antidotes insulin when injected with it into rabbits. Later, however, Goldner and Ricketts(11) criticized the technic of the previous investigators and reported that under better experimental conditions no indication of an anti-insulin factor in the blood of schizophrenics could be found. More recently Harris(12) has reported that some patients' sera have an antagonistic effect on the action of insulin whereas others do not—a finding that may account for the discrepancy in the preceding reports. Such findings as the foregoing, in addition to others in the literature, point rather definitely to the desirability of exhaustive studies of carbohydrate metabolism in schizophrenia. These will involve more searching endocrine exploration than has yet been made.

Some further evidence as to why insulin has a favorable effect in some cases of schizophrenia and not in others has been brought forward. Raab has reported a technic for measuring in the blood a factor which he

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believes to be a composite of adrenalin and adrenal-cortex hormone (A-C). Tietz and Birnbaum(13) measured this compound weekly during the course of insulin-shock treatments of 29 schizophrenics. The patients who were responding well to the treatment showed a rising level of A-C and stability of it under the stress of the shocks. Patients who responded poorly showed persistently low A-C values with marked instability under shock. The findings are regarded as supporting the earlier suggestion of Cameron and Jellinek that adreno-sympathetic responsivity is an important factor in determining the outcome of the insulin therapy.

Greene and Swanson(14) have called attention to a possibly important relationship between the parathyroid glands and psychosis.

Of some interest to psychiatrists is Escamilla and Lissers's(15) exhaustive review of Simmonds's disease and the discussion of the differentiation between it and anorexia nervosa.

McQuarrie and his associates(16) have recently published the results of a study of 2 severely epileptic patients in whom the effects of desoxycorticosterone acetate upon water and electrolyte exchange were determined. The adrenal hormone was found effectively to antagonize both the electrolyte responses and the seizure-provoking effect of pitressin. Some lessening in the incidence of spontaneous attacks was also observed.

In the field of biochemistry, the study of the halogens has been a frequent and recurrent theme in psychiatric investigation. This year brings iodine to the front, rather than bromide or the chlorides. Neustadt and Howard(17) claim that, on the average, manic patients have higher, and depressive patients have lower blood iodine levels than a group of normal controls, and that in individual cases of "true manic-depressive psychoses" there is a close correspondence between changes in mood and changes in blood iodine.

The oxidative mechanisms of the body, and particularly of neural tissues, have received much attention in the biochemical literature, but we have not seen contributions of definitely psychiatric significance. Himwich and Fazekas(18) report another

study on hypoxia and cerebral respiration in the newer shock treatments, adducing some additional evidence to sustain their proposition that the ameliorative effects are achieved through the depression of cerebral metabolism. H. Wortis(19) gives a general discussion of some nutritional aspects of brain metabolism.

Two successive papers in *Psychosomatic Medicine* present two somewhat diverse, but complementary aspects of the relationship between personality functioning and "spontaneous" hypoglycemia. Romano and Coon(20) report a careful case study illustrative of the principle that an impersonal disturbance of metabolism may produce a delirious disorder of consciousness, and that the behavior in such a condition is specific to the personality structure of the patient. Rennie and Howard(21) call attention to a group of cases in whom a disturbance in personality function seemed to induce a hypoglycemic tendency of a particular type. In these cases the hypoglycemia did not occur after long fasting, but after the ingestion of carbohydrate. For example, under the usual glucose tolerance test, some reached hypoglycemic levels, even in the first two hours. Their psychiatric predisposing condition was characterized as tension-depression. The relief of tension by psychotherapy or circumstance was found to relieve the hypoglycemic tendency.

The potentiality of an autointoxication by amines in psychiatric patients has been studied again by Richter and Lee(22), using a new technique for amines of the aliphatic type. "In every case the blood contained less than 8 parts per million." With a variant of technique, yielding figures designated "amino-lipid," a slight increase was noted in schizophrenics.

The same authors(23, 24) also report upon determinations of the choline esterase of the serum in psychiatric conditions.

In the field on neuropathology the most notable event of the past year was the appearance of a new quarterly periodical, *Journal of Neuropathology and Experimental Neurology*, chief editor Dr. George B. Hassin, publication office at Mt. Royal and Guilford Avenues, Baltimore, Maryland. The contents of the early numbers have been of

more special neurological interest than psychiatric. Alpers and Hughes(25) report upon the brain changes after electrically induced convulsions. They find in the human subject multiple small hemorrhages, but apparently less severe and less widespread than the effects in cats(26) or those reported in rabbits by Heilbrunn and Weil(27).

A brief and succinct review of the organic concepts of schizophrenia is presented by Scheidegger(28), who concludes that one must admit that one deals here, not with a primary brain disease, but a disturbance of metabolism. Other alternatives were not discussed.

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ALCOHOLISM, NEUROSYPHILIS AND GERIATRICS

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During the past year no important new material on the subject of alcohol has been produced. "Alcohol Explored" by H. W.

Haggard and E. M. Jellinek published by Doubleday Doran, is the first of three books published during the year. It is a review of

the important physiological, pathological and sociological problems connected with alcohol, primarily for the general public, but worth reading by the medical profession.

A second book "Alcohol Addiction and Chronic Alcoholism" Vol. I, edited by E. W. Jellinek and published by Yale University Press, is the first of three volumes which will be an exhaustive clinical exposition of present knowledge on the problems of alcohol in relation to the individual. This is a project sponsored by the Research Council on Problems of Alcohol and the Department of Psychiatry of New York University College of Medicine, aided by a grant from the Carnegie Corporation.

A third book, "Acute Alcoholic Intoxication" by H. W. Newman, published by the Stanford University Press, is a critical discussion of a number of controversial subjects dealing with the problem of alcohol absorption and its effect on the individual.

Although a number of excellent articles have appeared, they have not contributed anything new. Hitchcock(1) concludes that "ethyl alcohol does to some extent stimulate respiration," but that "this stimulation is so slight and is of such short duration that it is of very little practical importance." Other articles have dealt with cirrhosis of the liver and chronic alcoholism and its treatment, but are mostly reviews of the literature.

Caveny(2) reports from the Philadelphia Naval Hospital that the treatment of acute alcoholism and delirium tremens by the newer method of forcing fluids, giving salt and large amounts of vitamins, particularly the B complex, has reduced the number of days of hospitalization by 50 per cent. He says that in 100 cases, there were no deaths and no cases of Korsakoff's psychosis.

Most writers feel that it is better to have special institutions for chronic alcoholics than to have them mingle with psychotic patients in state hospitals. They have to be frequently readmitted and remain for too short a time in state hospitals.

Myerson, Alexander and Moore(3) suggest that bars and restaurants should display signs urging the drinker to eat while he drinks and to take necessary additional vitamins. They also suggest that all bottles of alcoholic beverages should contain a label pointing out harmful effects of alcohol in

large dosage and giving advice about drinking. It is claimed that the Food and Drug Act covers this requirement.

There has been much discussion of the treatment of chronic alcoholism by non-medical groups(4). Many of these praise *Alcoholics Anonymous*. An interesting article by Hiltner(5) discusses the rôle of the church in understanding and helping the alcoholic. He stresses the importance of the culture in which the individual lives as a contributing factor, and recommends that the public should treat the alcoholic with "complete social ostracism, not as a person, because of his drunkenness." He also discusses the value of religion in producing a cure.

One of the few really valid articles in discussing the relationship of alcoholism to industry is by Rachel W. Stevenson(6), entitled "Absenteeism in an Industrial Plant Due to Alcoholism." The following is a summary of her article:

About three per cent of all the employees in the steel mill miss work one day or more a year because of drinking, and this three per cent means that 418 employees lose 2692 working days in one year because of absences for drinking, plus disciplines for drinking.

The decrease or increase of the enrollment of employees bears no direct relation to decrease or increase in the percentage disciplined for drinking.

The employees who miss work because of drinking are older than those who do not.

The years of service of both groups are similar, except that since the men not disciplined for drinking are younger there is a greater number of this group with the fewest years of service.

There are more divorces, separations, widowers and children among the men disciplined for drinking. This is partly because they are older.

Education among men disciplined for drinking is lower than in the control group. This also might be expected since an older group had fewer educational advantages 20 years ago.

The kind of work or type of job shows little influence on the number of disciplines for drinking in different departments of the mill.

A most valuable contribution by Carlson(7) is a discussion of the possible usefulness of research. He discusses this under five headings: (1) Chronic alcoholism; (2) temporary inebriety; (3) alcohol and crime; (4) temporary inebriation and highway, industrial and other accidents; (5) the effects of alcohol on longevity; and finally, what he calls the central "unknown" in the alcoholic problem. He first points out that we

know very little of the nature of chronic alcoholism or a method of cure. He doubts whether low vitamin intake ever leads to alcohol addiction, and says that although there are treatments which minimize the effects of chronic alcoholism, these are not cures. The problem of temporary inebriety can be solved only by the prevention of alcoholic addiction. Carlson feels that much of the alleged relationship of alcohol to crime is not causal. He states, "Some of these crimes are committed by persons while having more or less alcohol in their blood, just as they are committed by some persons having more or less food in their stomachs." He does recognize the effect of alcohol in depressing cerebral centers, weakening the social and moral conditioning, and promoting a greater immediate response to the powerful emotions of hate, fear and sexual lust. Carlson is skeptical of all statistics dealing with inebriety and accidents. While he feels that further study is necessary along these lines and the concept "no drinking on duty" is justified, he nevertheless emphasizes that most of the articles printed on this subject have little value. Carlson feels that the core of the alcohol problem is this:

Side by side with the fact of alcohol addiction in a very small minority, and of occasional inebriety in a somewhat greater number of people, stands the equally significant fact that the overwhelming majority of so-called civilized men and women can consume alcohol within moderation during the greater part of their lives without becoming alcohol addicts. It is probably this latter fact which so far has rendered total abstinence of legal measures alone so futile. If alcohol per se is a habit-forming drug, it is evidently so only for a small percentage of our population. What is peculiar or special in the personality make-up or in the social environment of these people that induces or permits this addiction?

Carlson feels that the whole problem is one which is too complex for any single one of the biological or medical disciplines. He expresses the hope that it may be possible to detect the potential addiction at an early age and by some method of training or conditioning, prevent the development of alcoholism. He concludes with the following statement:

Perhaps we unduly shelter, nurse and pamper the congenitally less fit. For the time being, we of today seem to have lost much of the mental stamina of the pioneers. We have neither the guts for a

philosophy of stoicism, nor the faith to render the "Heaven" of tomorrow much of a solace for current woes or a motive toward moderation in all things. So we hunt means of escape from the thorns of living, and alcohol is one of these. There are many others—some of them far worse. For alcoholic inebriety is most injurious to the individual. The periodic and pandemic mass of inebriety of war impairs us all.

In an excellent article on "Alcohol and Driving," Newman(8) points out that the effect of alcohol varies with different individuals. He finds that at a level of 150 mgms. per 100 cc. or above, all individuals tested were affected, but the degree varied considerably, and it was not possible to say that some of the individuals could not have driven in a perfectly satisfactory manner. He therefore questions whether such a minimum standard of blood alcohol concentration can constitute absolute evidence of being under the influence of liquor.

The *Quarterly Journal of Studies on Alcohol* contains in its September 1942 issue a symposium on alcohol in the war by ten authors. Space prevents further reference to it and the reader is referred to the original source. It is well worth reading.

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GERIATRICS

A careful neuropathological study of the changes occurring in the arteriosclerotic

psychoses has been made by Rothschild(1) with an attempt to work out their psychiatric significance. He does not find a clean cut relationship between the lesions and the symptoms. Some cases showed marked mental symptoms with a comparatively small amount of anatomical involvement, while others with marked anatomical changes showed only mild symptomatology. He concludes that the brain, like other organs, is able to compensate to a certain degree, and that the ability to compensate varies in different individuals. This agrees with the fundamental psychiatric concept that unstable personalities may develop mental disorders under comparatively little strain, while more stable types are able to compensate and show few symptoms even when there is marked brain impairment. Such a concept does away with the purely mechanistic view point of cerebral arteriosclerosis, and by inference, the senile psychoses, and again emphasizes the importance of personality in any understanding of mental disorders.

Strecker(2) emphasizes that the climacteric for men as well as women, is a period of strain and that the unstable individual may succumb to the various stresses, mental, physical or environmental which occur at this time of life. He emphasizes that involutional melancholia occurs three times as frequently in women as in men; that it occurs somewhat earlier in women, usually from 40 to 55, whereas in men it is commonly from 50 to 65. He emphasizes the length of the psychosis and the unfavorable prognosis in at least 25 per cent of the cases. Of significance is the statement that suicide or intercurrent disease causes death in 20 per cent of all cases. He believes that in long drawn out cases with severe symptomatology where the prognosis appears poor, prefrontal lobotomy may be of value. Endocrine therapy has accomplished little, but may ultimately accomplish more. Electroshock therapy has produced excellent results in a number of cases.

Robinson(3) finds the delirious reactions in elderly people are quite frequent, but may often be prevented if the use of sedatives is avoided as much as possible. Elderly persons should not be bed patients unless absolutely necessary, for putting them to bed

may often precipitate a pneumonia. If they are confined to bed, massage of the dependent parts will help prevent stasis. Special attention should be paid to diet and vitamin deficiencies are of great importance. Older persons do not have the resiliency of younger ones, and cannot stand the same treatment. They are more apt to develop a drug delirium. Glucose infusions, 10 per cent glucose and plain water are recommended. Usually 500 cc. a day given very slowly will be tolerated. Small doses of insulin are often of value.

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NEUROSYPHILIS

1942 produced no outstanding progress in the problem of neurosyphilis. Several publications of appraisal(1) have appeared which materially aid in the orientation toward the most satisfactory use of present-day therapy. The process of comparisons of results of fever therapy as induced by malaria and by artificial fever continues. In artificially induced fever the trend in the past year or two is toward shorter courses given more frequently, and evidence is accumulating that chemotherapy given simultaneously with artificial fever(2) may be of distinct advantage. In chemotherapy there is a continuation of the search for new and better arsenicals. Favorable results from the pentavalent arsenical, alvarsone, were reported(3) last year, and this year several new ones appear on the horizon.

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PHYSIOLOGICAL TREATMENT OF THE PSYCHOSES

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An extensive survey(1) by the United States Public Health Service indicates that the shock treatments are now almost universally employed in all types of psychiatric hospitals throughout the country. The convulsive treatments, presumably because of their relative simplicity, are more widely used than the insulin treatment. Electroshock is rapidly superseding metrazol as a convulsive agent. Insulin appears to be preferred for treatment of dementia præcox, and convulsant treatment for manic-depressive or involuntional psychoses, though the convulsant treatments are widely and successfully used in schizophrenia and are sometimes(2) credited with an efficacy equal to insulin. Failure with one form of treatment justifies a trial with the other. Weinberg and Goldstein(3) report that a considerable number of convulsant treatment failures responded successfully to a subsequent course of insulin treatment. The converse is also true.

RELAPSES

Bond and Rivers(4) in a series of studies have shown that cases of schizophrenia successfully treated with insulin tend to relapse over a period of time, with approximately 20 per cent of the recoveries psychotic again after five years. These figures however substantially exceed those for spontaneous recoveries. The cases of McKendree(5) show a similar tendency. This is in general agreement with the subsequent course of our own series of cases though experience to date shows that more intensive treatment, and a prompt second or third course of treatment in the event of relapse, can maintain recovery in some cases over six years. A course of shock treatment, remarkable as the results may be, cannot however be regarded as a basic or permanent corrective for the underlying disorder.

COMPLICATIONS

The most frequent complication of electroshock treatment is vertebral fracture(6). The use of curare as a preventive has again been recommended by Woolley, Jarvis and Ingalls(7), who recognized the hazards, but believe them justified. One of their cases suffered a dislocated shoulder, another required four minutes of artificial respiration before apnea ended, and a third collapsed and was moribund until several minutes of artificial respiration revived her. Charlton, Brinegar and Holloway(8) report a death from use of curare, but also feel its use is justified "in selected cases." It still seems to me wiser to rely on hyperextension and save curare for special indications. Worthing and Kalinowsky(9) recommend a choice of electric dosage which allows a certain latent phase before the onset of a convulsion to minimize the dangerous jackknifing which occurs in severe and precipitate convulsions. Brill and Kalinowsky(10) have recommended routine artificial respiration following each electroshock treatment to shorten the period of apnea.

Vascular accidents have on the whole been surprisingly infrequent even in the arteriosclerotic and hypertensive groups. Webb(11) reports the successful treatment of an eighty year old woman, with a systolic pressure of 260 mm. of mercury. Arterial pressure, measured on the arm, may increase 100 mg. of mercury or more during a seizure. But according to the careful experimental work of Cleckley, Hamilton, Woodbury and Volpitto(12), compensatory increases in cerebrospinal fluid pressure, transmitted from increased intraabdominal pressure, tends to neutralize the effect of this increased arterial pressure in the cranial cavity, and the total venous return to the heart is not greatly increased.

THE PHYSIOLOGICAL EVENTS IN SHOCK TREATMENT

In spite of numerous reports on accompanying biochemical and physiological changes, no single change has been found which correlates closely enough to clinical improvement or recovery to be significant. Persisting irregularities in the brain wave pattern are often found after twelve or more electroshock treatments(13, 14). Twenty convulsions may produce permanent changes in the EEG, but no clear clinical correlations have been noted—in fact clinical improvement is often associated with the appearance of "pathologic" brain waves. Memory difficulties may persist for many weeks if ten or more treatments are given. The animal experiments of Alpers and Hughes(15, 16), as well as others, again suggest that the electroshock treatments are not innocuous. They should not be lightly prescribed, nor should they be unduly prolonged.

Too little has been done to analyse the electrical phenomena of electroshock treatment. In choosing between duration and voltage to adjust the dose, we have little experimental evidence to guide us. From the pathologist's point of view amperage seems more dangerous than timing(17). Effective dosage for production of a convulsion, however, depends both on duration of dosage and on the amperage produced. Unfortunately, because of the properties of living tissues, Ohm's law cannot be applied, and this amperage cannot be calculated in advance with the low voltage ohmmeters incorporated in certain electroshock devices now on the market. Offner(18) appears to have developed an effective circuit, employing high frequencies and low voltage, for correctly indicating milliamperage in advance. He has found that most patients will respond to currents of 400 to 450 milliamperes for 0.2 or 0.3 seconds. But there is no indication whether or not this is the best dosage from the therapeutic or physiological point of view.

OTHER PHYSIOLOGICAL TREATMENTS

In spite of discouragements, reports(19, 20) on the efficacy of ovarian hormone in involutional depressions persist in the literature. Most previous workers have been over-cautious in dosage. Stilbestrol by mouth, in

doses up to five or even ten milligrams a day, appears to have a certain value, particularly in the milder disorders associated with the menopause. It lends itself to use as an adjunct or follow-up to electroshock treatment, or as an alternative treatment in unresponsive or relapsed cases.

The value of mild ambulatory insulin treatment has been confirmed in several quarters(21, 22), and seems indicated in selected cases. Tomlinson and Ozarn claim some of their best results with this method in paranoid cases of five to ten years duration. Cases with gastrointestinal complications, or suffering from malnutrition, particularly in the senile group, may benefit from vitamin medication, particularly of the B complex(23), and its wider use in obscure psychiatric disorders is justified.

THE AVAILABILITY OF PHYSIOLOGICAL TREATMENTS

A recent report of the New York Temporary Commission on State Hospital Problems has recommended more intensive use of the shock treatments in our state hospitals. Treatment in the early stages—ambulatory treatment in selected cases if need be—is particularly important. There are still too few facilities available to the public for use of these newer treatments in acute psychoses. The incorporation of active psychiatric treatment wards in general hospitals(24) would appear to be a welcome and appropriate means for relieving the pressure on our state hospitals and reducing the incidence of mental disease in our population.

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ELECTROENCEPHALOGRAPHY AND EPILEPSY

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The rising tide of interest in the electrical activity of the brain has been checked somewhat by the fact that new dependable apparatus is no longer available except for those deeply involved in defense activities. The mantles of Dusser de Berenne, who contributed so greatly to knowledge of the physiology of the brain, have fallen on both the Illinois and the Yale laboratories. McCullough(1) is making simultaneous tracings of the oxygen tension and of the electrical activity of the brain, observations of fundamental value. Kennard and Nims(2) have found that lesions of the caudate nucleus or of the putamen, if combined with lesions of the motor areas of the cortex, cause persistent dysrhythmia and in five of fifteen animals a state of epilepsy, a condition not resulting from cortical or subcortical lesions alone.

Electroencephalography naturally is scrutinized as a possible aid in the selection of

candidates for military service. In a study of 274 men, some abnormality was found in 15 per cent of those who gave no history of severe head injury or neuropsychiatric disorder, and in 30 per cent of all candidates. The proportion of abnormal records was 28 per cent for those selected for service, 36 per cent for those rejected and 55 per cent for those rejected for neuropsychiatric reasons(3). In the testing of 109 aviators, the best flying records were made by men with a dominant frequency of 10 or 10½ waves per second. Obviously this technique can be of considerable supplementary value in determining fitness for certain types of service. The test will be of more practical use when an automatic means of analyzing records can be widely used (4, 5).

Evidence accumulates that an undue proportion of youngsters who are so-called "behavior problems" have abnormal EEG's.

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Reports of 74 per cent(6), and 85 per cent(7) are probably too high because of the smallness of the groups and the inclusion of epileptics. In a group of 143 children the figure was 51 per cent(8). In a group of 13 problem children cared for at the Bradley Home, the administration of various drugs in weekly periods which improved behavior did not, in that short period, alter the brain waves(9).

Among problem adults, 339 inmates of state prisons, records of 34 per cent were considered abnormal, double the proportion among normals. Seizure discharges, bursts of high voltage waves, were found in the records of 4 per cent of inmates, in 2 per cent of normals and in 51 per cent of epileptics(10). The proportion was not higher than average in those sentenced for crimes of violence.

In animals, brain waves do not slow until intracranial pressure is raised sufficiently high to shut off cerebral blood flow(11). The few alcoholic persons tested did not show significant changes unless deeply intoxicated(12). In a group of 100 morphine addicts, the report emphasized the prominence of the alpha (normal) rhythms(13).

In a group of 25 patients with Addison's disease, abnormal brain waves were encountered in 72 per cent. Disturbances were not corrected by the administration of desoxycorticosterone acetate(14). There is confirmation of previous observations that dysrhythmia accompanies vitamin B₁ deficiency in pigeons. Waves returned to normal in from one to 17 days after thiamine was resumed(15). Further confirmation of abnormalities in chorea is the finding of dysrhythmia in 17 out of 20 patients with this disorder(16). Among 200 patients with syphilis of the central nervous system, definite abnormal conditions were found in 50 per cent, against 7 per cent in a group of 215 controls(17). Among 28 persons with recent head injury, brain waves were abnormal in 32 per cent. The abnormalities tended to disappear in subsequent months(18). An extensive investigation undertaken in animals disclosed a decrease or absence of electrical activity immediately after a hammer blow, followed in one-half to several minutes by slow wave activity. Persistence of the slow waves depended upon the severity of the injury(19).

In youth and old age brain wave patterns differ greatly from the patterns of young or middle aged adults. In monkeys, the transitions of early life, in accelerated stages, are similar to those of children(20). Among aged "normal" persons, the proportion with abnormal records is high (21). Among 203 institutional epileptics, fewer normal records were encountered in patients over 50 years than in patients under that age(22).

As for the uses of the EEG in clinical studies of epilepsy, in 52 patients, focal disturbance of the brain was indicated in 63 per cent by electroencephalography, in 60 per cent by clinical findings and in 17 per cent by pneumoencephalography(23). EEG seizure patterns were encountered in 75 per cent of cases classed as idiopathic against 50 per cent of those classed as symptomatic. The treatment of schizophrenic patients by means of induced convulsions offers a splendid opportunity for studying the effect of convulsions on the electrical activity of the brain. Various authors agree that shock therapy is followed by abnormally slow brain waves for a variable period. Abnormalities do not include the characteristic alternate wave and spike of petit mal. Metrazol and electric shock produce similar EEG changes. In one study, patients displaying slow waves caused by treatment did not require smaller amounts of the convulsant in subsequent treatments. Six epileptics required the same voltage as psychiatric patients but spontaneous seizures, both grand mal and petit mal, were more frequent in the days following the induced convulsions. One psychotic patient, with a convulsive type of EEG pattern before treatment was started, had a grand mal four weeks after shock therapy was ended(24). Spontaneous seizures in one patient who had received shock therapy was reported by another group(25) and eight such cases by a third(26). Post-convulsive brain wave changes increase in degree and in duration with the number of shock treatments, a statement not necessarily true for the spontaneous convulsions of epilepsy. In one group of nine patients, two had permanent EEG abnormalities after receiving 18 and 20 metrazol injections(27).

Electroencephalographers are not yet agreed on classifications or on the significance of specific wave patterns. For example, one worker(28) finds the alternate

wave and spike formation in only 13 per cent of patients having only petit mal, whereas a nearby laboratory reports 85 per cent(29). Failure to agree on the clinical definition of petit mal is one difficulty. In spite of EEG and clinical evidence, some authors persist in speaking of a slight metrazol induced seizure as a petit mal.

EPILEPSY

Epilepsy is a serious war problem. Persons subject to seizures are not eligible for service and war wounds will greatly increase their number. The value of the electroencephalograph has been mentioned. The rehabilitation of epileptic service men should give impetus to a condition to which too little attention is paid—the employment of epileptics(30). Protection of the public from epileptic automobile drivers is being pushed in California(31) and elsewhere(32). The problem of the education of epileptic children in public schools is in a chaotic condition as shown by a report from New York(33). The Detroit experiment deserves attention(34). The incidence and significance of childhood convulsions has always been questioned. Among 8823 children, 6.7 per cent had one or more convulsions during their first five years. Of those who could be followed through adolescence, 12 per cent were epileptics and another 13 per cent were mentally defective. The incidence of epilepsy in the whole group was estimated at 0.8 per cent. Chances of becoming epileptic were 15 times greater if one or more convulsions occurred during the first five years(35).

In the consideration of etiological pathology of the brain, rheumatic fever has been little suspected. Three cases of obliterating rheumatic enteritis with pathological findings are reported(36). Of 2153 patients suffering from rheumatic heart disease, epilepsy occurred approximately twice as often as in the general population(37). The continuing destruction at the periphery of a traumatic lesion which has been described in traumatic epilepsy is present in non-epileptogenic lesions also(38). Sulphathiazole when applied to the brain as a preventive of infection produced convulsions in five patients with

death in two(39). This finding has been confirmed in dogs(40), but not in cats(41).

The problem of mental defect in epileptics is of perennial interest. Among 1905 extramural patients who had experienced an average of 2000 seizures over an average of eight years, 64 per cent were normal and only 14 per cent definitely deteriorated. Patients who were mentally deficient at birth had twice as many relatives with epilepsy or with psychosis as patients mentally normal at birth(42). The application of the Kent-Rosanoff word association test has failed to disclose significant differences of personality between epileptic and non-epileptic groups of persons(43). Patients often express relief when the diagnosis of symptomatic or organic epilepsy rather than idiopathic epilepsy is made; yet comparison of the two groups shows that the true epileptics are much better off as regards mentality(44).

A most interesting observation concerns the production of a state in monkeys and rabbits corresponding to epilepsy in human subjects. Various chemical substances were placed on the motor areas of the cortex, oxides of aluminum being particularly effective. Egg white also produced temporary epilepsy in animals previously sensitized to egg white. Chronic proliferative reaction not pathonomic for the convulsive state were found at autopsy(45). Among physiologists and psychologists interest has been aroused by the occurrence of peculiar behavior amounting in extreme cases to convulsions in rats subjected to high pitched sounds. Curarization, bilateral vagotomy and mechanical restraint(46) as well as starvation(47) prevent seizures. Pyridoxine deficiency seems to be conducive to seizures in rats, although one author observed them only in suckling(48), and another in older animals(49).

As regards drug therapy, authors continue to sing the praises of dilantin (phenytoin) sodium. Among 211 institutional patients, 59 per cent showed more than 50 per cent improvement. A fatality was observed in a 33 months old baby given 0.3 grains daily for five weeks. Autopsy showed bronchopneumonia. In 34 cases not helped by dilantin alone, 14 were improved by the addition of phenobarbital. Improved conduct was

more obvious than improvement of mentality(50). Of 58 patients who displayed drowsiness, irritability or neurological signs with phenobarbital, the addition of amphetamine sulphate (benzedrine) relieved these symptoms in 39 cases. The frequency of seizures was not altered(51). One article lists 33 toxic symptoms which may follow the use of phenytoin sodium. In a small group of patients receiving treatment from the authors, only 16 per cent continued the use of the drug(52). Little has been written about the intrinsic action of dilantin. Because the drug seems to prevent entrance of cocaine into the brain, one paper suggests that dilantin decreases the permeability of brain tissues to a toxin(53). Fifty years ago Haig contended that epilepsy is a uric acid diathesis. He would be overjoyed to learn that the injection of phenyl cinchoninic acid (atophan, a specific remedy for gout), prevented metrazol convulsions in rabbits(54).

Among social gains should be mentioned the growth of an educational group which for the first time had an exhibit at the meeting of the American Psychiatric Association, the Laymen's League Against Epilepsy(55).

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CHILD PSYCHIATRY. MENTAL DEFICIENCY

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Child psychiatry, as everything else in the year 1942, has been noticeably affected by the conditions resulting from the world conflict. The call to military service has removed at least 15 experienced child psychiatrists from the clinics which they directed or in which they otherwise functioned in a leading capacity. The scope of fellowship training had to be reduced because of the smaller number of available men. A few programs which had been inaugurated in 1941 had to be temporarily interrupted. This is especially true of the course of training offered by the United States Public Health Service to promising young psychiatrists, with the view of establishing mental hygiene units in the several states. Nevertheless, essential work and the number and quality of publications have managed to hold their own.

Among the book publications, Allen's *Psychotherapy with Children*(1) is by far the outstanding contribution of the year. A product of original thinking and methodology, it represents the long-awaited expression from a recognized leader in the field of child guidance. The essence of Allen's work and ideas has not always been clearly understood by outsiders. His book, whose first and next to the last statement is that "children with personality and behavior difficulties can be helped to help themselves," affords such an understanding and, over and above, evolves a warm-hearted, humble and uniquely persuasive philosophy of child development and therapeutic orientation.

The second volume of Ackerson's *Children Behavior Problems*(2) (the first appeared in 1931) is a statistical study of "relative importance and correlations among traits" or notations found in the case histories of 5000 children seen between 1923 and 1927 at the Illinois Institute for Juvenile Research. The labor put into the 559 pages must have been tremendous. The author has cautiously avoided every possible pitfall. Yet, from the point of view of practical application, one significant question remains unanswered. The question is: So what?

Psychologic Care During Infancy and Childhood by R. M. and H. Bakwin(3) is the ambitious attempt by two psychiatrically interested pediatricians to present to their colleagues a review of the mental hygiene problems confronting the child specialist.

The *American Journal of Orthopsychiatry* continued to serve as the principal depository for articles on child psychiatry. *The Nervous Child*, founded in 1941, brought out two symposia, one on childhood schizophrenia (co-edited by Bender) and one on pathological lying (co-edited by Wile). Current Continental European journals are no longer obtainable for review.

Children's reactions to the war situation, previously reported from England, have since Pearl Harbor become an important item of local curiosity. Despert(4) rendered a valuable service by furnishing a well-integrated survey of the literature, enriched by original contributions. The American Orthopsychiat-

ric Association held at its annual meeting a special session on Child Guidance During the Crisis. The July issue of *Mental Hygiene* brought an illuminating symposium on the subject. Further data are being collected by many clinics, mostly in collaboration with the National Committee for Mental Hygiene and the Office of War Information. All these, and other, presentations have yielded the following main facts: "Where anxiety in relation to the war was reported or observed, the child had previously presented an anxiety problem" (Despert)(4). "Marked anxieties, directly as a result of the war, were not too much in evidence, and clinical pictures solely determined by the war were absent" (Bender and Trosch)(5). As a result of blackouts, "acute anxieties do crop up as always when children are frightened, but these are usually reflections of other added reasons for their insecurities" (Solomon)(6). Children's emotional attitudes were found to be markedly influenced by the reactions of their parents (Coghill(7), Geleerd(8), and others). Anxieties developed more readily among strangers than in the presence of familiar person: "One year of work with England's refugee children has revealed that a child can be bombed out, yet smile two minutes afterwards, or sleep peacefully while a bomb makes a big crater in a garden less than fifty yards away. Love for the parents is so great that it is a far greater shock for a child to be suddenly separated from its mother than to have a house collapse on top of him" (Freud and Burlingham)(9).

The flood of articles on play work and play therapy has receded almost abruptly. Only a few have appeared in 1942, notably those by Durfee(10), Gerard(11), and Jenkins and Beckh(12), all but one of which deal with specific features of technique or equipment.

Especially noteworthy among the published contributions of the year are the studies of behavior disorders associated with intracranial tumors by Langford and Klingman(13), Levy's notes on the correlation between menstrual flow and maternal behavior(14), Berman's article on obsessive-compulsive tension states in children(15), and Russell's observations of hyperactive

children(16). Electroencephalographic evaluations (Secunda and Finley(17), Lindsley and Henry(18)), though indicating a fruitful trend of investigation, are still somewhat obscured by the application of diffuse and ill-defined concepts, such as "problem children" and "neurotic traits." Santamarina's paper on children's habits(19) is typical of a number of presentations through which psychiatrists trained in the United States are beginning to spread psychiatric intelligence among pediatricians in the Latin American countries.

The increasing fraternization between child psychiatrists and students of *mental deficiency* has gathered momentum. The section on mental deficiency of the American Psychiatric Association has been officially expanded into a section on the psychopathology of childhood. The *American Journal of Mental Deficiency* carried in its issues regularly articles on various phases of child psychiatry; one of the most stimulating was the study by Yerbury and Newell on factors in the early behavior of psychotic children as related to their subsequent mental disorder(20).

Pototzky and Grigg(21) sounded a more optimistic note with regard to mongolism; they found that mongoloids "are capable of mental and social development to a level much higher than heretofore supposed." Jervis(22) presented a comprehensive review of the literature on mongolism since 1928, covering 146 bibliographic items. Pototzky(23) suggested a classification of mongolism on the basis of capillaroscopy. Benda (in conjunction with Bixby(24)) added another of his valuable studies on mongolism. Marburg's studies of the pathology and pathogenesis of amaurotic family idiocy(25) point in the direction of involvement of the adrenal and thymus glands, disturbance in the liver and spleen function, and damage to the internal cell metabolism of the nervous system.

Strauss and Werner, untiring for years in their successful efforts to find ways of differentiating the feeble-minded, made further important contributions concerning disorders of conceptual thinking(26), perseverative tendencies(27), and "ways of think-

ing" (as yet unpublished) of brain-injured children.

An event of far-reaching significance was the dedication on May 15, 1942, of the Wallace Research Laboratory at the Wrentham, Massachusetts, State School, under the administrative auspices of Raymond and the scientific leadership of Benda. This means the establishment, under a recognized leader, of a center for research into the causes of failure in the growth and development of human beings.

The July issue of the *American Journal of Psychiatry* contained two papers, one read by Kennedy (The Problem of the Social Control of the Congenital Defective: Education, Sterilization, Euthanasia) (28) at the Richmond meeting and one presented by Kanner (Exoneration of the Feeble-minded) (29) in Boston. They centered around the question of euthanasia, which Kennedy favored "for those hopeless ones who should never have been born—nature's mistakes," and which Kanner opposed. The matter was taken up in an editorial in a most enlightening manner (30). Since the topic was a controversial one and since this reviewer was one of the participants in the controversy, he can do no better than to refer the reader to the original statements and the very apt editorial.

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PRESENT STATUS OF PSYCHIATRIC TEACHING

FRANKLIN G. EBAUGH, M.D., AND CHARLES A. RYMER, M.D., DENVER, COLO.

Psychiatric education is confronted with the greatest challenge and some of the greatest problems in its history. The teaching of psychiatry had hardly been established in all medical schools when we became engulfed in the current conflict. Psychiatric principles were just being accepted in medicine, and students were beginning to display an understanding of personality factors in normal adjustment. Departments of psychiatry were beginning to be adequately staffed; acceptable standards for the training of psychiatric instructors and clinicians were being established, and genetic-dynamic ideologies and methodologies were being formulated. Even so, much remained to be done

in the classroom and clinic. Moreover, the great challenge of psycho-politics and the far-reaching effect of warped personalities upon the governed had scarcely been recognized. Perhaps no other single event than war could have demonstrated so clearly the need for good teaching in psychiatry, for a psychiatric viewpoint in selecting the armed forces, and for the care of the civilian population. Ironically enough, at the very moment when these additional responsibilities are clamoring for attention, the progress of psychiatric education is hampered because the teaching personnel has been greatly depleted by the war.

A questionnaire designed to investigate the

present status of psychiatric education with special reference to the teaching personnel was sent in August 1942 to the departments of psychiatry in 66 medical schools; answers were received from all of them. This questionnaire consisted of the following items:

1. Give names, teaching titles and military ranks of members of your department who are now in the armed services.
2. Give names and teaching titles of members of your department who are now applying for commissions.
3. Give names and teaching titles of members of your department who may later decide to join the armed services.
4. Give names and teaching titles of members of your department now declared essential by Procurement and Assignment.

The consensus seemed to be that the "essential list" was only temporary, and, should more psychiatrists be needed by the government, additional psychiatric teachers would be lost to the schools. A more detailed analysis of the results can be given question by question.

1. Give names, teaching titles, and military ranks of members of your department who are now in the armed services. As already noted, 179 men had entered the military forces by August of this year. Only 8 schools had not contributed men to these services, but these schools already had very small staffs. Some of the schools failed to note the military rank of the men in the

TABLE I

ACADEMIC STATUS AND MILITARY RANK OF PSYCHIATRIC TEACHERS IN ARMED FORCES

Academic status	Army (124 men)					Navy (34 men)				Rank not given (21 men) Army and Navy	Total Army and Navy
	1st Lt.	Capt.	Maj.	Lt. Col.	Col.	Lt. J. G.	Lt. S. G.	Lt. Com.	Com.		
Professor, or Clinical Professor...	..	..	3	2	2	..	..	1	1	1	10
Associate Professor .....	..	..	1	1	..	..	..	1	1	2	6
Assistant Professor .....	..	3	6	2	..	1	2	7	..	2	23
Associate .....	..	5	4	1	..	1	1	5	..	5	22
Instructor	19	21	15	..	..	1	6	2	..	7	71
Assistant Resident Fellow Demonstrator } ...	18	14	2	..	..	1	2	1	..	4	42
Not given	3	..	1	1	..	..	..	..	..	..	5
Totals	40	43	32	7	2	4	11	17	2	21	179

5. Is your present staff sufficiently large to carry on adequately all essential psychiatric teaching?

6. Has the accelerated teaching program taxed your teaching personnel? How?

7. Have you been able to utilize the teaching abilities of the psychiatrists in private practice in your community?

8. General comments regarding the effect on teaching of psychiatry in the present crisis.

The total number of psychiatric teachers reported from the 66 schools was 556. This means an average of over 8 per school, and represents a great expansion from that of only 3 noted by the survey conducted in 1932 by the National Committee for Mental Hygiene. Of the 556 persons, 179 have entered the armed services; 41 are in the process of receiving their commissions; 65 may enter at a later date; 244 have been declared essential by the local Procurement and Assignment boards; and 27 are women.

service, but we do know the rank of 158. Of those in the army, 40 are first lieutenants, 43 captains, 32 majors, 7 lieutenant colonels, and 2 colonels. In the navy, 4 hold the commission of lieutenant junior grade, 11 of lieutenant senior grade, 17 of lieutenant commander, and 2 of commander. These military ranks and their relation to the academic status of psychiatric educators are noted in Table I. As might be expected, there is a general correlation between the academic and military ranks, since those with higher academic status tend to receive higher commissions.

2. Give names and teaching titles of members of your department who are now applying for commissions. Forty-one men who plan to enter the services were in the process of gaining their commissions at the time the questionnaire was sent out. The num-

ber of these now in the service is unknown, but undoubtedly many of them have left their schools to take up their new work. If this group of 41 is added to the 179 already in the service, we see that 220 men have either left or soon will leave their respective teaching positions to become officers in the military services. While this total may not seem very impressive, it represents approximately 40 per cent of the psychiatric teaching personnel in medical schools at the time of the outbreak of war.

3. Give names and teaching titles of members of your department who may later decide to join the armed services. To the number of men now serving or soon to serve in the military forces, we may add poten-

this number, 27 are women and 244 are men who have been declared essential by Procurement and Assignment. Undoubtedly, if the need for doctors becomes greater, some of those who are in teaching positions will be called, even though they are now considered essential. Already the majority of these men declared essential to teaching have indicated their willingness and eagerness to enter service should they be needed. Six of them hold reserve commissions. Table II shows the academic rank of men declared essential. There seems to be little relation between academic rank and the state of being essential, since practically the same number of instructors, assistant professors and professors are now considered essential.

TABLE II
STATUS OF PSYCHIATRIC TEACHERS REMAINING IN SCHOOLS

Academic status	Declared essential by procurement and assignment	Women	Total
Professor, or Clinical Professor.....	59	1	60
Associate Professor	37	5	42
Assistant Professor	52	2	54
Associate	22	0	22
Instructor	53	9	62
Assistant Resident }	15	10	25
Fellow Demonstrator }			
Not Given	6	0	6
Totals	238	27	271

tially another group of 65 who still remain attached to medical schools. Eighteen of these men hold reserve commissions in either the army or the navy. The remaining

These data on the disposition of the psychiatric teaching staffs at the time the questionnaires were answered can be summarized as follows:

Armed services	Seeking commissions	May apply later (not declared essential)	Essential	Women
179 (32.2%)	41 (7.4%)	65 (11.7%)	244 (43.9%)	27 (4.8%)

47 may apply for commissions later; at least some of them will undoubtedly enter the services, since none has been declared essential.

4. Give names and titles of members of your department now declared essential by Procurement and Assignment. Even though a considerable number of men has entered directly into the war effort, and others are in the process of doing so, there still remains somewhat more than half of the psychiatric educators actively engaged in teaching. Of

5. Is your present staff sufficiently large to carry on adequately all essential psychiatric teaching? Whether this question can be answered by a mere yes or no without some qualifications is doubtful, and many schools so indicated in their answers. As one psychiatrist pointed out, one must first define what is meant by "essential teaching." However, 33 schools said that the essential psychiatric program could be given with the present set-up; 12 schools felt that teaching would go on satisfactorily, but at a reduced

level; 18 felt that their present staffs were too small to maintain this standard; 3 schools expressed no opinion. Practically, there is probably little difference between those who stated that the present staffs were not large enough to carry on essential teaching adequately and those who stated that the teaching would go on satisfactorily, but at a reduced level. These are probably slightly different ways of commenting upon the same situation. Incidentally, it is interesting to note that the average number of remaining teachers is somewhat higher in those schools which felt that standards could be maintained than in those who felt that the teaching program would have to be curtailed (4.5 and 3.0 teachers, respectively). Since even one additional instructor might mean the difference between the adequacy and inadequacy of the psychiatric teaching program, it is to be expected that those schools with the larger staffs will find themselves in a better position. Even in these schools, however, the statement was frequently made that any further depletion of the present staffs would lead to impairment of the teaching program. A number of schools reported the dropping of some courses and the necessity for teaching larger classes with less individual supervision. At least one school noted that no further expansion or revision of the teaching program could be undertaken at present. Several schools reported the curtailment of graduate psychiatric education and the general neglect of research.

6. *Has the accelerated teaching program taxed your teaching personnel? How?* With about 40 per cent of the teaching personnel already in the armed services, it is not hard to see why 36 schools reported that the present accelerated teaching program has taxed the teaching personnel. Many emphasized that the present level of psychiatric teaching was being maintained only by greater effort on the part of those remaining. Undoubtedly, the members of the psychiatric departments who have remained with their schools have accepted greater teaching responsibilities, and many schools reported that their staff members were teaching more and larger classes and were forced to go without vacations. The fatigue from carrying these added responsibilities is not

immediately forthcoming, and further inquiry at a later date into the physical condition of the teaching staff may be indicated. Interestingly enough, almost a third of the schools had not felt the accelerated program to any significant extent and have not found their staffs unduly taxed so far; however, some of these stated that the further withdrawal of teachers from their staffs would increase materially the work of those remaining. Both among those already understaffed and those facing this possibility there was a general acceptance of the situation and an expressed willingness to do the very best under the circumstances.

7. *Have you been able to utilize the teaching abilities of the psychiatrists in private practice in your community?* From the answers received to this question, it appears that the shortage of psychiatric teachers cannot be remedied to any extent by using psychiatrists in private practice. As a rule, the private man has also entered the service, leaving not only his medical school but also his practice behind. Only 15 schools felt it would be possible to get any help from these men, and most of these schools were already utilizing this assistance. A small number of schools replied that the caliber of private practitioners available was not such as would maintain the teaching standards of the school, and that the use of some of the older men would result in the overemphasis upon the organic and the neglect of the psychogenetic point of view.

8. *General comments regarding the effect on teaching of psychiatry in the present crisis.* This last item provoked some of the most interesting comments of the questionnaire. Many of those responsible for executing the questionnaire feel that the present crisis has brought psychiatry into its own more than any other single event to date. They report that the medical student and the medical profession as a whole have become more aware of personality and psychiatric problems as they present themselves in relation to the military personnel. For once there seems to be a more widespread interest in psychiatry, even though stimulated primarily by military demands. The opinion was expressed that the present crisis may establish psychiatry as a major phase of medical edu-

cation. A few psychiatric educators believe that through this crisis the general public may gain a better understanding of personality problems, and with this a greater appreciation of the potentialities of mental hygiene in reducing severe personality deviations. On the other hand, some workers in psychiatry feel that the limited staffs coupled with the increased demands for psychiatric teaching have so sharply limited the whole program of psychiatric education as to retard the progress of psychiatry. This curtailment is strikingly illustrated by the cancellation, necessitated by the lack of teaching personnel, of the proposed Sixth Institute for State Hospital Men scheduled to have been held at San Antonio, Texas, October 1 to 14, 1942.

It is evident that the demand for courses in psychiatry has increased. In the first place, the accelerated medical school program requires a more frequent repetition of the basic undergraduate courses. In addition, the demand for courses in military psychiatry, especially in the postgraduate field, has increased. Added to this are the increased requests for lectures to lay groups in the community on the psychological aspects of the war, such as bombing, panic and the rôle of propaganda. Moreover, there seems to be a growing interest in the psychodynamics of war—why do wars occur and how can they be prevented?

Considering the picture of psychiatric education as a whole, we see greatly increased demands being made and almost unparalleled opportunities for service. Coincident with these is the severe curtailment of teaching personnel in the medical schools

because of the requirements of the armed services. It may be questioned whether the needs of psychiatric education can be met adequately with the limited teaching personnel. As noted above, a significant number of schools report that the teaching of psychiatry has already deteriorated; others state that their staffs are taxed almost to capacity; still others indicate that if they lose any of the men now declared essential, teaching will deteriorate in those schools. Research and graduate and postgraduate teaching are already being neglected.

Certainly the difficulties confronting psychiatric education are great, and it appears that not only must the program for the raising of standards be considerably slackened, but that some hard-won gains must be temporarily relinquished. On the other hand, the contributions which psychiatry is making to the war are considerable, if through no other way than the addition of a number of highly trained men to the military forces. The psychiatric service, through viewpoints and practice, which these men can render is potentially tremendous, provided they are not blocked by regimentation.

In spite of the difficulties confronting psychiatric educators, each is glad to make his contribution to the nation, either at his old post in the medical school with greatly increased responsibilities, or in his new position with the armed forces. These educators will maintain as far as possible the standards which have already been realized, and will meet the additional challenges of the war with trained minds and some vision of the rôle of psychiatry in the future.

A MESSAGE FROM THE PRESIDENT

To the Membership of The American Psychiatric Association:

It has been learned that there is a real need for the younger neurologists and psychiatrists in the Army and assurance may be given that their qualifications will be appropriately utilized. Those interested should apply for appointment through their local Procurement and Assignment boards, specifically stating in detail their training and experience and requesting assignment in the specialties of neurology and psychiatry.

Many of us undoubtedly think that the mental hospitals of the country, the medical schools and the communities have given to the Army and Navy all the psychiatrists that can be spared, but it is obvious that we must make further sacrifices and see that the Armed Forces are provided with adequate psychiatric help.

Your Special Committee on Psychiatry in the Armed Forces has been mindful of the fact that with medical men going into the Armed Forces immediately upon completion of one year of general internship, there would be no younger psychiatrists in training except with the Armed Forces. The Council at the December meeting voted to ask Dr. Karl A. Menninger to confer with Mr. McNutt regarding the deferment of as many young psychiatrists as possible who

would be assigned to various psychiatric training centers for one year of training in psychiatry. We are encouraged to believe that this may be effected, and a questionnaire is being prepared to be sent out to all recognized training centers to determine their present ability to carry on one year of psychiatric training.

The plans for the May meeting are progressing and, as the program is being centered about Army, Navy and Merchant Marine psychiatry, we feel that the Detroit meeting should add a great deal to the interchange of ideas and the establishment of certain psychiatric principles for the Armed Forces. We realize that it may be difficult for many of our members to be spared from their already overburdened positions; but, because Detroit is centrally located and at the Canadian border, we expect many of our Canadian members, and are anxious to have as many members as possible from the States with us as many days as they can spare.

I am glad to be able to report from my work on the Secretary of War's committee reporting on the health of the Army that psychiatry in the deliberations of that committee was given a leading place in the discussions and in the confidential report.

ARTHUR H. RUGGLES, *President*,
The American Psychiatric Association.

COMMENT

DR. ROSANOFF

As this issue goes to press word comes of the death, on January 7, of Dr. Aaron J. Rosanoff, until recently Director of Institutions in the State of California and a most valued member of the editorial board of this JOURNAL.

More than a year ago Dr. Rosanoff had expressed regret for a slight delay in correspondence, saying that he had been seriously ill and had undergone an operation. Some time later he decided to resign as Director of Institutions and to return to his home in Los Angeles where he planned to continue research and writing and to resume the private practice which had been sacrificed when he assumed headship of the Department at Sacramento. Despite the threat of recurrent and fatal illness he entered upon a full program of activities. His last contribution to the literature appears in this number of the JOURNAL.

Only a few weeks ago, when the final blow had fallen, Dr. Rosanoff wrote to explain his earlier illness and present outlook. From his bed where he knew that presently the end would come he spoke as calmly and judiciously as he had always done about matters which were not personal at all. "I have recently developed sarcomatous metastases in both lungs," he wrote. (The original malignancy had appeared in the left thigh in July 1941.) "It will be impossible, therefore, for me to continue henceforth to perform my duties as a member of the Editorial Board of our JOURNAL. I cannot tell you how much I regret it," and he added, "But nothing lasts forever!" And then, in a postscript, almost casually, "The same rude interruption occurred within 10 days after I furnished and opened my new office in Beverly Hills."

The courage and equanimity of the man were abundantly demonstrated in these *ultima verba*. They were an object lesson in the mental hygiene he practiced as well as preached.

During the first World War Dr. Rosanoff was prominent in the neuropsychiatric ser-

vice of the United States Army, and for his work won a citation from the government.

His "Manual of Psychiatry" has been current longer than any other textbook in English. Appearing first in 1905, the seventh edition, rewritten and greatly expanded, was published in 1938. The author had made notations which he anticipated using in an eighth edition. One of his important early studies supplied a tool, the Kent-Rosanoff association test,* which has been standard in the psychological examination of patients for thirty years.

As Director of Institutions in California Rosanoff was able to introduce measures which improved materially the State Hospital System. The most conspicuous achievement of his régime was the establishment of the splendid Langley Porter Clinic as a psychiatric treatment, research and teaching center in San Francisco. This institution was opened July 1, 1942, and is maintained by the Department of Institutions in connection with the University of California Medical School and the University of California Hospital. The departmental plan included the later development of a similar center in Los Angeles to serve the southern part of the state. A very significant feature of Dr. Rosanoff's administration was the increasing attention to out-patient and extra-mural care. He appreciated the value of a psychiatric social service, properly trained, organized and coordinated with the administrative branch, and of increasing the social service personnel in his boarding-out program. The success of his undertaking is attested by the fact that he was able to raise the number of patients under care but living in the community to more than 21 per cent of the total number carried on the books of the state hospitals. In spite of increased admission rates, overcrowding was measurably reduced.

Rosanoff exerted a good influence on

* A Study of Association in Insanity. Am. J. Insan., 67: Nos. 1 and 2. 1910.

American psychiatry. He might be described as a progressive conservative. He was tolerant. He took account of various "schools" and went his own way; and in that way he was steadily guided by controlled observation and tested experience. As a student of

heredity, as a clinician and teacher, as a far-seeing administrator, Dr. Rosanoff stood very high.

This JOURNAL will miss his counsel and help. The editor pays tribute to the memory of a loyal friend and a staunch collaborator.

ADMINISTRATION PROBLEMS

Superintendents of institutions for mental patients are experiencing increasing wartime administrative difficulties. In common with all other agencies including many private industries, activities are limited in many fields by such problems as loss of personnel, priorities and the like. These conditions are to be expected during a "global" war of which all persons, old and young, are a part. The situation, however, merits careful consideration, especially as to possible remedial measures.

As to personnel, the young and vigorous physicians and nurses are required for active military duty. The Selective Service, moreover, has taken many male attendants and other employees who have had important hospital positions. Employees also are attracted by the higher pay offered by neighboring war industries. As a result there are many vacancies in positions involving the safety and welfare of mental patients.

Because of the limitations due to priorities, new buildings required for institutional expansion must be postponed. In some instances even urgently needed repairs cannot be made because of inavailability of material. Furthermore, the difficulty in securing furnishings and equipment has sometimes delayed the utilization of new buildings. Rationing various commodities and increased costs have complicated further the budgetary problems.

Deferment requests and salary increases have been rather unsuccessful attempts to meet some of the personnel problems. Other efforts with some encouraging results have been the employment of older men, especially over-age physicians; the employment of women in places formerly held by men; the experimental employment of conscientious objectors as attendants and other workers, under special arrangements with Selective Service, the compensation being only living

with a very small cash allowance. Retired employees have been brought back into active service. The wives of officers in some hospitals are being employed on ward and other duty.

With the lessened number of employees, there has had to be a reduction of some activities, reluctantly it is needless to say, including the discontinuation of some fields of work such as clinics and social service, necessarily more limited by gas and rubber rationing. In some hospitals more officers and employees have thus been made available for ward duty. Reduction in the amount of paper work such as in the size of the institutional records has been successfully accomplished in some hospitals.

Offices of Central Control, whether they be Bureaus of Mental Health, Departments of Mental Hygiene, or functioning under some other name, have both great responsibilities and opportunities in such difficult times. It is assumed that central control agencies will be conducted in such a manner as to promote initiative and self expression on the part of superintendents. It is moreover assumed that the superintendents will cooperate in any proper coordinated plan in the interests of the institutions as a whole included in the supervised group. More than ever cooperation, team-work and leadership are needed.

The Central Control agency should make every effort to preserve the highest type of treatment and care provided under the difficult circumstances. The institutions should be aided in presenting a solid front against political interference and other encroachments. There should be constructive leadership, promoting the study and adoption of promising new methods of treatment such as family care. In view of the scarcity for repairs and replacements, inventories of institutions should be investigated as to possible surpluses of material, equipment or

various articles needed by some institutions. The central control office should make available such surpluses to other institutions requiring same, and the institutions should cooperate. Such transactions should be accompanied by some type of credit exchange

so that the institution from which a surplus is withdrawn will not incur a loss. These are some of the ways in which Central Control offices and institutions may meet some of the present day problems.

W. C. S.

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NEWS AND NOTES

THE AMERICAN ETHNOLOGICAL SOCIETY. On November 14, 1942, the American Ethnological Society held in New York City its centenary celebration. A significant feature of this meeting was the presence of the pioneer American anthropologist, the late Franz Boas, as dinner speaker. During the proceedings the Society passed this resolution:

Be It Resolved: That The American Ethnological Society, for 100 years dedicated to the study of peoples not belonging to Western Civilization, express upon the occasion of its centenary celebration its profound conviction that racial persecution and discrimination cannot be scientifically justified. We protest the distortion of anthropology which falsely assigns inborn superiority to some one "race" and assigns others to inborn inferiority. Ethnological studies arouse enthusiasms for the inventions and social life of many peoples of all races and make it impossible to assent to the dogma that civilization depends upon the enslavement of one race by another.

SCIENTIFIC EXHIBITS AT THE DETROIT MEETING.—All those desiring to have scientific exhibits for the Detroit meeting should make immediate application to Dr. S. Bernard Wortis, in charge of scientific exhibits, 410 East 57th Street, New York, N. Y. The research committee makes the final selection from the applications received.

TRANSPORTATION RESERVATIONS FOR THE DETROIT MEETING.—The program for the next meeting of the Association is taking form, and promises to be of great interest. In keeping with the times, much emphasis will be laid upon the applications of psychiatry to problems of the Army, Navy and Merchant Marine.

It is hoped and expected that the meeting will be held as originally planned, at the Hotel Statler, Detroit, Michigan, May 10-13, 1943. In view of the unprecedented demands now being made upon the railroads of the United States and Canada and upon the hotels as well, members are strongly urged to purchase their railroad tickets as early as possible, and to make their hotel reservations now.

Mr. Austin M. Davies, the Executive Assistant, Room 708, 9 Rockefeller Plaza, New York, N. Y., will be glad to render any service possible to members with regard to these matters.

Please assist the railroads and hotels by making immediate reservations.

MEDICAL BOOKS FOR RUSSIAN WAR RELIEF.—American medical and surgical textbooks sent to the Soviet Union by hundreds of American medical men and students through Russian War Relief, are helping to prepare new doctors for work with the Red Army and among Russia's 40,000,000 evacuees from invaded territory, it was revealed in letters sent to Russian War Relief by students in the First Kharkov Medical Institute.

The Kharkov Institute, one of the largest medical schools in the world, was moved to Chkalov when the Nazis occupied Kharkov. Classes were in full swing within a week after the faculty and student body left Kharkov.

A letter written in painstaking English and signed by six first year students said that "our Institute, in spite of war conditions, is preparing many new physicians for the front and the rear and we work hard at it On Sundays we work at the plants and so help the front. . . . We students thank you for the books which you have sent for us," the note concluded.

Russian War Relief, 11 E. 35th St., New York City, is seeking all kinds of up-to-date medical textbooks for Soviet medical students and for the Central Medical Library, in Moscow, which is used by both military and civilian doctors.

NOTICE OF PROPOSED CHANGE IN CONSTITUTION.—In accordance with Article VIII of the Constitution and by vote of the Council at a meeting held December 19, 1942, notice is hereby given that at the annual meeting in 1943 the following amendment will be proposed, for action in 1944:

Amend Article III, Sec. III by striking out in line 1 the words "Examining Board" and substituting the words "Committee on Membership"; in paragraph 1, line 3, and in paragraph 2, line 1, strike out the word "Board" and substitute the word "Committee."

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC., REGIONAL EXAMINATIONS IN 1943.—In view of transportation difficulties, the American Board of Psychiatry and Neurology, Inc., will hold regional examinations in May 1943. Proposed places are Boston, Minneapolis, San Francisco, New Orleans and Ann Arbor. The exact times will be settled later, but the practical examinations will take place late in April and early in May, ending just before the meeting of the American Psychiatric Association in Detroit, May 10th. One or more of the designated cities may be omitted from the schedule if less than 20 candidates apply for examination there.

Written examinations will be given in March in each candidate's immediate vicinity as soon after March 1st (the closing date for applications), as arrangements can be made.

For details, communicate with the Secretary, Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN RED CROSS OFFERS MEDICAL SOCIAL SERVICE SCHOLARSHIPS.—A program of American Red Cross scholarship aid has been established as one means of increasing the number of qualified medical and psychiatric social workers available for Army and Navy hospitals and medical and psychiatric units. These scholarships will be granted to selected persons interested in training for these fields of social work offering approved curricula in medical or psychiatric work.

Candidates may designate the school of their choice from the approved list. The aid will cover one academic year—two semesters or three quarters. Upon completion of training the scholarship student will be expected to fulfill an agreement for two years' employment with the American National Red Cross.

Candidates must be between 22 and 40 years of age, in good physical health, and must have personality qualifications which indicate a likelihood of success in their chosen fields of work. Educational requirements include the successful completion of one academic year of work in an accredited graduate school of social work. The employment agreement of two years assumes that the service will be within the continental limits of the United States unless a student volunteers for Insular or Foreign service.

The scholarships provide full tuition and an allowance of \$65 a month for maintenance. Application forms may be obtained by writing to area assistant directions of the Military and Naval Welfare Service, Hospital Service or the Personnel Training Unit, Services to the Armed Forces, American Red Cross, National Headquarters, Washington, D. C.

Area office addresses are as follows:

North Atlantic Area: 300 Fourth Avenue, New York City

Eastern Area: 615 N. St. Asaph Street, Alexandria, Va.

Midwestern Area: 1709 Washington Avenue, St. Louis, Mo.

Pacific Area: Civic Auditorium, San Francisco, Calif.

BRIGADIER GENERAL REINARTZ, COMMANDANT AVIATION SCHOOL OF MEDICINE, HONORED FOR 25 YEARS OF SERVICE.—Brigadier General Eugen G. Reinartz, commanding officer of the School of Aviation Medicine at Randolph Field, Texas, the West Point of the Air, was honored recently by officers and instructors at the school of aviation medicine in celebration of the 25th anniversary of his entrance into service with the medical section of the air forces.

Appointed commandant of the Aviation School of Medicine in September, 1941, General Reinartz served as director of the department of neuro-psychiatry of the school from 1931 to 1934, when the School of Aviation Medicine at Randolph Field was established, and his continuing influence and authority in emphasizing the psychiatric viewpoint have been of great value in the instruction of the multitudes of medical officers coming to Randolph Field.

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of service as medical officer in the United States Army Air Force, General Reinartz is now serving at his 25th station in a career which has included assignments in Hawaii, the Philippines, ten states and the District of Columbia.

MEDICAL CORRECTIONAL ASSOCIATION.—This Association, an affiliate of the American Prison Association, is interested in establishing contact with all professional personnel who are especially concerned with, or interested in, the medical aspects of crime. The membership in this Association is confined to the following groups:

1. Physicians employed in penal and correctional institutions or jails.
2. Physicians, social welfare workers and special workers engaged in medical research work in penal and correctional institutions or jails.
3. Physicians, psychologists, social welfare workers and special workers engaged in research work in connection with—(a) Institutions or hospitals for the mentally ill, (b) Mentally defective individuals, (c) Juvenile delinquents, (d) Defective delinquents, (e) Out-patient or behavior clinics dealing with any aspect of crime or its prevention, (f) Criminal, Juvenile, and Domestic Relations Courts, (g) Parole, (h) Probation, (i) Public and private schools, colleges and universities, (j) Federal, state, county and municipal Public Health organizations.
4. Any person who, though not automatically falling in any one of the foregoing three groups, presents satisfactory evidence that he or she is engaged in research or an occupation in which the medical aspects of crime are important features.

The annual dues of the Association are one dollar and its payment entitles the member to vote in elections, to present papers at the open meeting of the Association, to receive copies of the minutes, by-laws, as well as abstracts of papers which were presented at the last annual meeting.

The present officers of the Medical Correctional Association are: President, Dr. J. D. Reichard, U. S. P. H. S. Hospital, Lexington, Kentucky. 1st Vice Pres., Dr. John W. Cronin, Federal Reformatory, El Reno, Oklahoma. 2nd Vice Pres., Dr. Lawrence Kolb, Asst Surgeon General, Dept. Mental Hygiene, Washington, D. C. Secretary-Treas., Dr. Robert M. Lindner, Federal Penitentiary Hospital, Lewisburg, Penna.

THE KENNY TREATMENT OF POLIOMYELITIS.—In an editorial in the *British Medical*

Journal (Nov. 28, 1942), commenting on some of the representative contributions to the literature, occur the following passages, which although removed from their context may be quoted as the salutary expression of conservative opinion by this authoritative publication:

In emphasizing the benefit of mobility Miss Kenny had done useful work. . . . While not denying that there is room for improvement in the treatment of poliomyelitis and for further study of its underlying pathology, we believe that understanding will be enhanced by critical inquiry upon strictly neurological lines. So far this does not seem to have been done in the U. S. A. . . . We can scarcely agree with Dr. Lewin's statement in a recent paper "that the Kenny treatment is evidently the last word in the management of the acute stage of infantile paralysis." We do feel, however, that Miss Kenny has contributed something which has stimulated many of our American friends to fever heat, and that with the wonderful opportunities they possess they themselves will, by modification and development, make an important contribution to our understanding of infantile paralysis. . . . In spite of the invention of new names for old ideas, in spite of the benefits of Sister Kenny's painstaking attention to detail, which differs not in principle but possibly in emphasis, we believe that some American workers are giving extravagant credit to her work and are detracting from traditional American orthopaedics, to which sufferers from infantile paralysis the whole world over owe so much.

REPORT OF NOMINATING COMMITTEE.—Your Nominating Committee submits the following report:

For President, Edward A. Strecker of Pennsylvania.

For President-Elect, Karl M. Bowman of California.

For Secretary-Treasurer, Winfred Overholser of Washington, D. C.

For Councillors for three years: Arthur H. Ruggles of Rhode Island; Raymond W. Waggoner of Michigan; Thomas A. Ratliff of Ohio; Alexander J. Young of Nebraska.

For Auditor for three years: Ralph C. Hamill of Illinois.

Respectfully submitted,

HARRY J. WORTHING, M.D.,

Chairman, Nominating Committee,

GEORGE A. ELLIOTT, M.D.,

EDWIN W. ALLEN, M.D.,

JACOB S. KASANIN, M.D.,

ERIC K. CLARKE, M.D.

DR. KELLEHER APPOINTED SUPERINTENDENT OF ROME STATE SCHOOL.—Dr. James P. Kelleher, acting medical inspector for the New York State Department of Mental Hygiene, has been appointed superintendent of Rome State School at Rome, N. Y., by Commissioner William J. Tiffany. The appointment became effective November 1, 1942. Dr. Kelleher will succeed Dr. Charles Bernstein who died June 13, 1942.

Dr. Kelleher received his medical training in Tufts Medical School at Boston, graduating in 1910. He has been continuously in the state hospital service since that date and had been attached to the staffs of three of the larger institutions, when appointed acting medical inspector in June 1942.

DR. SIDNEY W. BISGROVE SUPERINTENDENT OF SYRACUSE STATE SCHOOL.—Commissioner Wm. J. Tiffany of the State Department of Mental Hygiene has announced the appointment of Dr. Bisgrove, first assistant physician at Marcy State Hospital, as superintendent of Syracuse State School, to succeed Dr. Charles E. Rowe who died July 30, 1942.

Dr. Bisgrove, who assumed his new duties Nov. 1, 1942, is a graduate of the Albany Medical School, joined the staff of the Utica State Hospital in 1921 and has been in the New York State Hospital Service since that time.

JOURNAL OF NEUROPATHOLOGY AND EXPERIMENTAL NEUROLOGY.—This new quarterly publication, which has now completed its first volume, is a scientific journal of high quality and fills a definite place in the literature.

The editorial board consists of Dr. George B. Hassin (Chicago), Chief Editor, Dr. Joseph H. Globus (New York), Executive Editor, Dr. Armando Ferraro (New York), Associate Executive Editor, and seven additional associate editors representing institutions in various parts of the country.

The *Journal of Neuropathology and Experimental Neurology* is published in Baltimore and the annual subscription is \$4.00.

DR. GILDEA GOES TO WASHINGTON UNIVERSITY.—Announcement has been made of the appointment of Dr. Edwin F. Gildea, associate professor of psychiatry at Yale University School of Medicine, to the chair in psychiatry and headship of the department of neuropsychiatry at the School of Medicine, Washington University, St. Louis.

Dr. Gildea is a native of Colorado, a graduate in medicine from Harvard University, and had been attached to the staffs of the Boston City Hospital and the Boston Psychopathic Hospital before becoming affiliated with Yale University and the New Haven Hospital in 1929. He has made valuable contributions to the literature, especially in the fields of biochemistry, endocrinology, nutrition and psychosomatic medicine.

DR. BERNARD SACHS HONORED.—On November 24, 1942, at Mount Sinai Hospital in New York City, took place a special ceremony to do honor to Dr. Bernard Sachs in recognition of his "sixty years of participation in the progress of medicine."

To Dr. Sachs, who was eighty-five years young on January 2, 1943, was presented a tribute-volume containing some eighty contributions by distinguished scientists, mainly for students and associates of the guest of honor.

Dr. Sachs was the founder of the neurological division at Mount Sinai Hospital, is past president of the New York Academy of Medicine, formerly professor of Mental and Nervous Diseases at the New York Polyclinic Hospital, professor of Clinical Neurology in Columbia University, and has served as consultant in neurology to various other New York hospitals. One of the great contemporary authorities on diseases of the nervous system, Dr. Sachs did pioneering work in the field of the neurology and psychiatry of childhood. This work he brought together, with the collaboration of L. Housman, in the well known textbook, "Mental and Nervous Diseases from Birth Through Adolescence."

The ceremony of November twenty-fourth was a happy event, in which many of the leaders in medicine, neurology and psychiatry united in paying tribute to their

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senior colleague. The homage of his friends must have made Dr. Sachs feel that life had been worth the living and that arduous and devoted professional work could bring its own unique rewards.

CORRECTION.—In line 12 of the article by Dr. Aschaffenburg, "The Admission of Patients to Hospitals for Mental Diseases," in the November issue of the JOURNAL, instead of "10,169 first admissions" read "110,413 first admissions."

AWARD FOR RESEARCH ON ALCOHOLISM.—The Research Council on Problems of Alcohol announce an award of \$1,000 for outstanding research on alcoholism during 1943. The research must contribute new knowledge, in some branch of medicine, biology or sociology, important to the understanding, prevention or treatment of alcoholism. Any scientist in the United States, Canada or Hispano-America is eligible for the award.

The project may have been inaugurated at any time, provided that a substantial part of the work be carried on during the year 1943 and developed to a point at which significant conclusions are possible before the end of the year, and that the work has not been reported previously before a scientific body or previously published. Those planning to work for the award should inform the Council promptly. On receipt of such information the Council can be helpful in the prevention of undesirable duplication of effort.

A report on the work and resulting conclusions must be submitted to the Research Council on Problems of Alcohol on or before February 15, 1944. The Council will provide an outline for use in the preparation of reports.

The cash award will be given to an individual scientist whose work is judged sufficiently outstanding and significant. The Committee of Award will consist of an officer of the American Association for the Advancement of Science, and four representatives of the Scientific Committee of the Research Council on Problems of Alcohol.

If the Committee is not convinced of the outstanding merit of the research reported

during 1943, it may, at its discretion, postpone the award until such time as work of such merit has been performed.

The Council will send on request, to any scientist, an outline of basic policies governing its research program, lists of Council studies (completed, under way and contemplated), and information regarding the studies of other agencies. Correspondence may be addressed to The Director, The Research Council on Problems of Alcohol, Pondfield Road West, Bronxville, New York.

NATIONAL COMMITTEE FOR MENTAL HYGIENE, ANNUAL MEETING.—The thirty-third annual meeting of the National Committee was held at the Hotel Roosevelt, New York City, November 12, 1942, with the president, Dr. Adolf Meyer, in the chair.

The occasion commemorated the 150th anniversary of the pioneering work of Philippe Pinel in liberating mental patients from their shackles in 1792, and at the same time contemplated another kind of shackle-removing which the present war is destined to accomplish.

The mental hygiene problems of war time dominated the program. The speakers and their topics were: Dr. Samuel W. Hamilton, Mental Hospital Advisor, Division of Mental Hygiene, U. S. Public Health Service, Washington, D. C., "Life in Our Mental Hospitals—Its Meaning for the Individual"; Dr. Marion E. Kenworthy, Director, Mental Hygiene Department, New York School of Social Work, Columbia University, "Striking Off the Shackles of Fear in 1942"; Robert E. Bondy, Administrator, Services to the Armed Forces, American Red Cross, Washington, D. C., "The Individual's Adjustment to Severing Community Ties in 1942"; Robert M. Heininger, United Service Organizations, New York, "Finding the Way in Mental Hygiene in 1942"; Dr. James S. Plant, Director, Essex County Juvenile Clinic, Newark, N. J., "Our Faith in Mental Hygiene in a World at War—Its Challenge for Future Generations."

Dr. George S. Stevenson, Medical Director, National Committee for Mental Hygiene, dealt particularly with the expanding war program of the Committee. He referred to initial experimental work, reported

last year, for improving selection in relation to both military and civilian manpower.

Our effort to have a person appointed officially to institute such measures state by state has not proved successful, but two states—Connecticut and New York—have done an outstanding job in this respect. The selectee of Connecticut, through the State Department of Health, is given a mental hygiene survey which is described by Washington as 100 per cent. This costs the taxpayer almost nothing. The selectee of New York State, under the initiative of the New York State Committee on Mental Hygiene of the State Charities Aid Association and the New York State Department of Mental Hygiene, has developed an adjunct to selection that Washington thinks should be carried to every state.

The second point in our program is that within the armed forces there should be early detection and treatment of incipient neuropsychiatric cases and prompt and adequate care and disposition of the mentally ill. On the point of early treatment, the essential thing is that those who deal with the able-bodied should come to know when they encounter a problem requiring special attention and should come to know what to do about it. Red Cross, physicians in the armed services, company officers, chaplains, USO, Special Services (morale), instructors and the military police are all in a position to act in this capacity before the problem becomes serious enough to warrant hospitalization. I am happy to say that all but the last of these have taken definite steps in this direction, and we are striving to introduce some steps in this case.

At Fort Monmouth a mental hygiene unit has been established as an intermediary station between the able-bodied and the hospital and we have been pleased to lend it such resources as we have in the furtherance of its effort.

There is one yet unsolved problem in the Army—a problem of great personal as well as military importance—and that is alcoholism. To date I have been unable to find anyone who considers it his responsibility to do something about this, at least until the case becomes serious. Some have tried to legislate the problem out of existence, but we know that cannot be done. There are those who have been successful in a variety of ways with the handling of alcoholism in civilian life. It would seem sensible to muster all of these experienced resources for more thoughtful handling of this problem.

The third point in our program is that the rehabilitation of disabled civilian and service men should be provided for both to augment manpower and to assist in individual adjustment. Past Federal legislation has ignored the mentally handicapped and the states have followed the Federal lead. Bills now before Congress are not too promising in this respect.

The fourth point in our program was that civilian services for the mentally unstable or ill must be protected. There is not much that we can do about the drastic reduction in psychiatrists, and nursing vacancies will be hard to fill. We can, however, direct our efforts so that the public will

not become complacent about these reductions in our civilian facilities.

Our last point in the wartime program of mental hygiene is much longer because we cannot so easily define the things that are ahead. Post-war life in America promises many challenges to mental hygiene organizations that must be given critical attention even if the future cannot now be well defined. We know that the returning service men will be faced with the problem not only of leaving a life into which they have sunk many roots but of entering one that has changed greatly in their absence. Even civilians will find it difficult to accept the change from wartime to peacetime conditions and to give up the idea of returning to things as they were in 1940. With democracy in the ascendancy, individual dignity and individual differences are destined to be given greater value, perhaps at the cost of some traditional economic rights or freedoms. Services need to be strengthened and policies adjusted to meet this challenge.

The following Directors were re-elected for a term of three years: Dr. Adolf Meyer, Dr. James R. Angell, Dr. Arthur H. Ruggles, Dr. Bernard Sachs, Hon. G. Howland Shaw, Mrs. Henry Ittleson, William J. Norton and Judge John Warren Hill.

ANNUAL MEETING: NOTICE TO MEMBERS.—The Committee on Arrangements will appreciate if when you are making hotel reservations, you will notify the hotel and the committee, if possible, whether you are planning to bring your wife, daughter, or other guest. In these days of rationing, it is important for the committee to know in advance approximately how many will be in attendance in order to arrange the program for the ladies.

OFFICES OF THE AMERICAN PSYCHIATRIC ASSOCIATION.—Beginning February 10, the offices of The American Psychiatric Association will be located in Rooms 924 and 925 in the same building which we are now in, namely, the Time and Life Building, and the address will continue to be 9 Rockefeller Plaza, New York, N. Y.

CENTRAL NEUROPSYCHIATRIC ASSOCIATION CANCELS MEETINGS.—Dr. William C. Menninger, secretary of the Central Neuropsychiatric Association, reports that the Executive Committee of the Association voted last fall to cancel all meetings for the duration of the war, and that accordingly no meeting is planned for 1943.

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BOOK REVIEWS

THE RÔLE OF CONJURING IN SAULTEAUX SOCIETY.

By *A. Irving Hallowell*. (Philadelphia: University of Pennsylvania Press, 1942.)

This publication is Volume II of a series of monographs on anthropological subjects, individual volumes of which will appear from time to time. The study is based on the author's personal contacts with the conjuring activities of the Saulteaux Indians of the Berens River in Manitoba, Canada, supplemented by data obtained from other first-hand observers of these performances and by second-hand information received from Indian and White informants.

The technique and meaning of conjuring, which is an aboriginal belief system, have attracted the interest of psychologists and psychiatrists, as well as of anthropologists and ethnologists for many generations, during which a great deal has been written on the subject, although only two professional ethnologists have heretofore been eye witnesses to these performances.

The author points out that the study of magico-religious beliefs and practices of a primitive people is particularly difficult for outsiders because of the tendency to use our own culture and ideas as standards. He says, "this area of thought, feeling and action more than any other is so intrinsically bound up with native metaphysical notions that are not clearly defined or articulated that it is sometimes difficult to be absolutely certain of our grasp of it. Yet we know that their conduct proceeds on the basis of such assumptions. But even at best our comprehension of the belief system of a primitive people remains on the intellectual level. We never learn to feel and act as they do. Consequently we never fully penetrate their behavioral world."

These facts are either unknown or are ignored by many, if not by most psychologists who speak glibly and write voluminously on the characteristics of primitive minds the meanings of which they interpret in terms of their own current notions.

According to this account based on the author's personal observations of the seances and contacts with informants, conjuring is undertaken to secure information about the health of distant persons, to discover the causes, proper treatment and prognosis of illnesses, to ascertain the nature of moral transgressions; to gain news of missing people, to locate the whereabouts of game in food shortage situations and to find lost articles. It thus has rather remarkable functions, and the prognostications and pronouncements seem to have a relatively high degree of accuracy. Both dreams and conscious emotional experiences play interesting rôles. The Indians enjoy a high class performance which diverts and entertains them although its primary purpose is a serious one.

The elements entering into the making of a conjurer, the character of the details of the performance itself, the behavior of the crowd on these occasions and the economic and social significance of the ceremony are all given a comprehensive description and discussion. It should be mentioned that the author was fortunate in obtaining some unique photographs of a conjuring lodge during its construction.

Many factors have been in force to preserve the vitality of this ancient ceremonial to the present time even in communities where the Indians have been influenced by occidental culture. All students interested in these matters will find the monograph very entertaining and informative reading.

N. D. C. LEWIS, M. D.,
New York State Psychiatric Institute
and Hospital,
New York, N. Y.

PSYCHIATRY IN MEDICAL EDUCATION. By *Franklin G. Ebaugh and Charles A. Rymer*. (New York: The Commonwealth Fund, 1942.)

I can well see many people rub their eyes in astonishment at the sight of a book of more than 600 pages dealing with psychiatry in medical education. It is not easy to get away from established impressions; and one such traditional impression, which still lingers, is that a small number of medical students in a few select centers gets psychiatry presented to them on a silver platter, while the remainder goes stark hungry or feeds on stale crumbs. The contents of undergraduate psychiatric teaching are usually envisaged as a series of lectures in which the "classical" psychotic conditions are described and illustrated by a few case presentations and a couple of sight-seeing trips to a state hospital. One has an uneasy picture of static psychiatry taught statically, leaving the student with the unorganized awareness of a few phenomena, which cannot possibly serve him in his future everyday practice of medicine.

If, in recent years, a marked change has begun to make itself perceptible, Dr. Ebaugh's persistent and painstaking efforts, coupled with a remarkable talent for organization, have contributed a lion's share to the improvement of psychiatric instruction. The recognition of his talents brought him the support and active assistance of the National Committee for Mental Hygiene, the Commonwealth Fund, the American Psychiatric Association, American Medical Association, American Hospital Association and other bodies interested in medical education. He had the experienced counsel of the Division of Psychiatric Education, established in 1931 and headed by Adolf Meyer. He is, therefore, the logical person to render, after a decade of untiring activity, an account of "the present situation with

regard to the content of the curriculum, the methods of teaching, and the general status of psychiatric education." In 1933, Ralph A. Noble, appointed director of the Division at the time of its foundation, published a small monograph of the same title as the book by Ebaugh and Rymer. The difference between the two might be compared to that of a theatre program and the play it announces, and that of boarding a train and being well on the way to one's destination. The book represents, as Dr. Meyer points out in his Foreword, "the report of performance" and offers "a synthetic as well as regional accounting" of teaching programs throughout the country.

The book, which is a well-integrated combination of survey, sampling, analysis of attitudes, record of progress, critical appraisal of shortcomings, and formulation of a goal, is divided into four sections.

The first section on "foundations" sets the stage by giving a general orientation regarding the evolution and essence of psychiatric instruction. It begins with the early period of "psychiatry in isolation" (up to 1914), describes the "breakdown of isolation" (1914 to 1931), and discusses the present era of "inventory and reorganization." A condensed and readable summary of psychobiology as the core of psychiatric (and medical) thinking is followed by a detailed and practical account of its application to the "objectives and trends of medical education," with consideration of the methods of selecting students, maintenance of their mental health, preclinical preparation and the integration of psychiatry into the medical curriculum.

The second section deals more specifically with "general psychiatric education." In a survey of 68 schools in 1932 the departmental status of psychiatry was ascertained, deans and teachers of psychiatry, medicine and pediatrics were interviewed and their views, needs and expectations recorded. Clinical facilities were considered inadequate in 42 per cent of the schools, and teaching personnel insufficient in at least 85 per cent; most schools needed strengthening of preclinical instruction and the introduction of liaison arrangements with the non-psychiatric departments. Three chapters of this section are devoted to an elaborate report on the status of teaching of normal behavior; abnormal behavior—psychopathology and psychoanalysis ("We believe that the presentation of psychopathology based on the genetic-dynamic principles of psychobiology and supplemented by psychoanalytic concepts where they add to the development of this viewpoint is the most desirable approach"); clinical psychiatry; clinical clerkships; outpatient department and liaison teaching; mental hygiene; child psychiatry; legal psychiatry. The authors take full account of the particular obstacles to the teaching of psychiatry, chief among which are the factors which lie behind some students' "dislike" of the subject and the antagonism created by terminological confusion. A review of "opportunities for psychiatric education and service in the general hospital" concludes this section.

Graduate and postgraduate "specialty training in psychiatry" is the topic of the third section. Here we find an evaluation of the concrete opportunities "which make this graduate study worth while": state hospital, teaching, research, liaison, child guidance, mental hygiene, court, industrial, military psychiatry positions and private practice. Then follow details about residencies, training programs in a number of representative centers, research facilities, and as a specific example the 3-year fellowship training plan conducted by the authors themselves at the Colorado Psychopathic Hospital. A chapter is devoted to postgraduate opportunities as "the most recent developments in this field," arising from the need of keeping up with the rapid advances in psychiatry and from "the general raising of standards which has accompanied the organization of the American Board of Psychiatry and Neurology."

"Retrospect and Prospect" is the title of the fourth section. From this we cull a few of the fundamental statements: "The extension of psychiatry to all four years of the medical curriculum, better teaching, and emphasis upon the psychosomatic aspects of medicine will consolidate the advances already made and strengthen the place of psychiatry in the medical curriculum as well as in general medicine." . . . "Even in the preclinical years laboratory experience is as necessary a part of psychiatric training as of biochemistry or pathology." . . . "Clerkships, either part-time or full-time, and outpatient work are indispensable adjuncts in psychiatric teaching." . . . "Since it is upon the shoulders of the teachers of psychiatry that the future of psychiatric education rests, concerted effort must continually be made to strengthen this personnel." . . . "The interrelations of psychiatry with the other major divisions of the medical curriculum are so important that they should dominate all psychiatric teaching and practice." . . . "The student of psychiatry must be taught three fundamental principles: the concept of man as a whole, a genetic-dynamic concept of mental disorders, and the close relationship of psychiatry to medicine in general."

All statements made in the book are minutely and well documented with the help of quotations, bibliographic references, a variety of lists and tables and 90 pages of appended materials. A carefully prepared index serves for ready orientation.

The authors deserve to be highly commended for the book itself and for the tremendous amount of labor and organization which is accounted for in the book. Some readers may feel somewhat overwhelmed by the mass of detail; they are easily reconciled by the succinct summaries at the end of each chapter. Some readers, including this reviewer, may feel that the rôle of mental hygiene and child guidance clinics in fellowship training does not receive the recognition it deserves; but then the survey has intentionally limited itself to teaching in medical schools.

The book represents a document of major significance. It should be in the hands not only of people interested in psychiatric instruction, but of

everyone concerned with the fundamentals and progress of psychiatry itself.

LEO KANNER, M. D.,
Johns Hopkins University
School of Medicine

SEX GUIDANCE IN FAMILY LIFE EDUCATION. By Frances Bruce Strain. (New York: The Macmillan Company, 1942.)

In this neat volume of 330 pages, in which is included a very useful classified bibliography, Miss Strain has made a real and needed contribution to sex education, particularly as applied to schools. Couched in clear, simple style, a concrete and satisfying orientation and framework for sex education, or as the author prefers it, "education for family life," is provided. This breadth of view, envisaging sex as part of the complex of life and living, is characteristic of the approach throughout. On this basis the subject is integrated naturally and functionally into the body and process of education as a whole rather than standing out as a specially injected, somewhat forbidding, even esoteric, technical concern.

The actual presentation is developed about the following chapter headings: A New Ideology; Gaining Community Support; Matters of Organization; The First School Experience; The Family Framework; The Preadolescent in Action; The Transitional Period; Creative and Recreative Pursuits; Family Relationships; Technique in Sex Teaching; The Counselling Center; Personal and Academic Qualifications.

In the opinion of the reviewer, Miss Strain is to be congratulated on a difficult job excellently done, which undoubtedly will be welcomed by school authorities, also parents and others interested in the problems of sex education.

T. R.

FOUNDATION FOR A SCIENCE OF PERSONALITY. By Andras Angyal. (New York: The Commonwealth Fund, 1941.)

This is a book, difficult to read and to evaluate, on the "Structure of the Wholes." It is filled with interesting mathematical and other illustrations and explanations. It is an effort to indicate how a science might draw upon psychiatry and psychology, physiology and sociology—a science of personality. How much a science must develop its own concepts is worked out in a closely reasoned system.

The reader will find criticism of much loose thinking, an original discussion of the self in society, a new concept of aggression. Certain readers, not all, will be illumined by what the author describes as an interpretive background against which empirical findings are to be held. The background will suggest what findings are to be looked for: the findings will sometimes indicate that the theoretical framework must be changed.

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GOALS AND DESIRES OF MAN. A Psychological Survey of Life. By Paul Schilder. (New York: Columbia University Press, 1942.)

Paul Schilder, whose untimely death deprived neuropsychiatry of an extremely active and original mind, left a legacy of manuscripts which a committee of his friends and followers is editing for publication. The reviewer of a posthumous work, such as the present one and which is entitled *Goals and Desires of Man*, must disregard the comfortable aphorism *De mortuis nihil nisi bonum*, since a book becomes a fact which is independent of the life or death of its author.

The chapters of this volume discuss with quite variable fullness the following matters: problem of biography, aggression, the openings of the body and power, tools and economics, attitudes toward death of children and of adults, the biology of sex, including infantile sexuality, homosexuality, sadomasochism, reproduction and offspring, narcissism and social relations, psychological theory of sex, masculine and feminine; danger situations, ideologies, work, morals; and finally a series of thirty-two conclusions, the latter, being in the opinion of the reviewer, the best part of the book in that the style is cogent, direct and penetrating. In the other chapters the style is often vague, non-sequiturs abound, and it seems to me unfortunate that Schilder did not have the opportunity to revise and correct as he would have done.

The first of these conclusions is merely the expression of a realistic philosophy—the reality of the objective world is affirmed and accepted. No psychiatrist can operate on any other principle. . . . There is causality and indeterminism in the psychic processes as in the physical world, yet "we may reasonably expect regular sequences." Schilder criticizes Freud because the latter applied the principle of causality too rigidly and approves the position of Adler and Jung "who have seen the possibility of indeterminism in psychic life, do not see that causality has to be applied in order to understand psychic sequences."

"Desires and instincts cannot be understood as mechanical agents. They have aims and purposes." This is true in part but recedes as we get more knowledge of physiology and pathology. Disease, pharmacological agents, including as a prime example alcohol, and neurological experiment (frontal lobectomy) can certainly alter and destroy desire and instinct. . . . "The psychological unit is the situation and the individual." True, indeed, but the statement that this principle has never been clearly formulated is not a fact, since it is as old as the hills and was formulated by psychologists who have emphasized stimulus, response, and stimulus organism and response for a long time.

In the seventh conclusion the author again differs from Freud. . . . "To Freud, the world merely serves to satisfy drives, a satisfaction for which the individual craves, without taking into consideration the world as such." . . . "Desires and drives go beyond mere satisfaction. They do not tend simply to bring the individual back to a state of

rest" which is a basic assumption of the Freudian psychology. With this I am in wholehearted agreement, for it is as fundamental a desire and drive to be active as to be at rest. The author goes further—he states that "The world of Freud is a shadow world, as far as the individual is concerned," whereas as Schilder sees it, "The world not only exists; it also offers interests. It invites action towards it, but there is also a genuine wish in ourselves that the world should persist in its variety."

One could go on to discuss each conclusion, but space prohibits this. Schilder doubts and also attacks the separation of the Unconscious and Conscious. He states that the unconscious experiences "are not always more important to individuals than so-called conscious experiences." This puts the objection mildly.

Schilder, in criticizing the narcissistic formulation of Freud to the effect that the child is primarily interested in his body and has no genuine interest in the world, states that this "has led to a serious weakness in the structure of his psychology." He further states that there are no independent destructive tendencies and he does not believe there is a death instinct, "There is no room for any specific death instinct. Death is a catastrophe."

The social aspects and relationships of the creation and deformation of personality are stoutly affirmed, and there is a final note of lofty ethical value in Schilder's final conclusion, "Because the sensory side of experience forms a unit with its motor side, psychology and ethics cannot be separated from each other. Our interest and insight into social structure determine the range of our actions. To acknowledge other human beings in their three-fold functions as human bodies and social and sexual personalities is the first step to an action which we might call moral, because it shows deep insight into social and individual relations. The satisfaction resulting from moral actions is not merely a subjective experience. It is a formation of what we may call a moral configuration. The attempt to impair another individual's body, or to subdue him as a sexual or social person, characterizes a more primitive degree of social adaptation. The individual himself may insist upon his three-fold integrity and needs courage for its defense. The integrity of the body has to be secured in a constructive effort towards nature. To consider morals merely from the point of view of happiness puts undue emphasis on the subjective side of experience."

In criticism I state that the bulk of the book is loosely organized and in many places curious statements occur. I cite a few of the points with which I take sharp issue. Thus, in the problem of biography Schilder states, "It cannot be disproved that there might be disconnected experiences in one individual's life, but the observations and formulations of modern psychiatry have made it very probable that even an organic brain disease cannot disrupt the inner unity of one's life experience. Furthermore, it has been shown that even severe damage

of the brain cannot destroy memories." (p. 7) (*Italics mine*).

This statement flies in the face of modern neurology, even if it has the sanction of certain semi-mystical developments of modern psychiatry. Brain tumors, brain injuries, the coma and stupor of all kinds of lesions and intoxications, as well as the phenomena of Schilder's disease itself, sharply contradict this affirmation of Something-beyond-Structure. True, there may be some squirming memory left so long as there is life, but memory and personality alter and disappear *pari-passu* with the intensity and locale of injury, lesion and chemico-physical change.

In the relatively long discussion of aggression and submission, Schilder emphasizes the rôle of the "protrusions" of the body, (including as protrusions the feces and urine), as symbols and weapons of aggression, and of the holes as the symbols and tools of submission. I suppose, therefore, when the sea gull swallows a fish, the bird is manifesting its submission to the fish. Somewhere in the book Schilder soberly congratulates a psychoanalytic writer for his belated discovery that the mouth is an organ of digestion as well as the seat of oral eroticism. Actually, the main organ of aggression is the mouth which leads into a long hole wherein destruction of the prey leads to the aggrandisement of the aggressor. And even the erect penis may symbolize the submission of a male to the desire of a female.

The chapters on death, work and ideology can only be described as incomplete and non-illuminating. It can best be assumed that they represent notes which the author intended to amplify and polish before publication.

With all its faults of arrangement and emphasis, which are undoubtedly due to the death of the author before he himself could put his ideas into shape, this book is valuable. It clearly shows that the analysts are on the road back to reasonable and modest formulations of the problems which beset psychiatry in its quest to understand the mind and the conduct of man.

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COLOR, CLASS AND PERSONALITY. By Robert L. Sutherland. (Washington: American Council on Education, 1942.)

One youth in every ten is a Negro. And how does the fact of being born a Negro affect the developing personality of the boy or girl?

To answer this question the American Youth Commission of the American Council on Education four years ago instituted a geographically wide and sociologically intensive survey to sift the facts of the Negro problem from the generalizations which too often surround it. The areas chosen for the study included (1) the rural South, (2) three cities in the South, (3) two cities in the Middle States, (4) two large cities in the North. (Few Negroes live in rural communities in the North or in the Middle States.)

From time to time reports of the sectional studies have been published; and now Robert L. Sutherland, director of the Negro Youth Study, has prepared a summary volume entitled *Color, Class and Personality*. Into the volume has gone not only the results of the survey, but also an outline of methods of control and improvement in keeping with the policy of the American Youth Commission, which is to formulate a program of action on the basis of new insights gained through research.

The staff attempted to avoid the horns of the proverbial dilemma as to whether race is a biological or social fact. The Negro problem is a race problem not in the sense that a purity of Negroid traits has given the American colored person a unique biological nature which makes him behave differently from white people, but rather in that being all or any part Negroid in appearance (the biological fact) has given him a condition of "high visibility" which enables others to identify him and place him in a special position in society, (the sociological fact). The staff therefore assumed that,—

"(1) The Negro in America came from one of the biological sub-species of homo sapiens, commonly known as race, but that (2) there was a wide range of physical variation among the African slaves brought to this country, (3) there was still less a pure type when Caucasian, Indian, and Negro blood mixed both legally and extramaritally during the early history of the New World, (4) at the present time many persons called colored have far more white or Indian blood than Negroid while others are closer to the original stock, and (5) the only thing which nearly all Negroes have in common is a biological label of darker pigmentation and different hair texture by which white society can identify and set them apart."

Neither did the staff begin its work with the assumption that being a Negro is the most important factor in the personality development of Negro youth. Although the focus of attention in the studies was on Negro youth of the adolescent period, the beginning traits at an earlier age were studied and their development beyond adolescence followed. In every area an effort was made to draw cases about equally from boys and girls, from the different educational levels and from the different social classes.

Studies in personality adjustment have often stressed childhood training, family relations, and inherited traits, but seldom have they shown the relationship between the dreams youth inherit from a culture of optimism and the frustrations they encounter in matching their dreams with reality. This the Negro Youth Study attempted, and the ultimate conclusion is that until the development of the separate Negro personality is guarded, nurtured, and stimulated—until the Negro youth learns "how to be black in a white world" meanwhile escaping neuroses of frustration—little can be done with the mass problem. Furthermore, because the majority of Negro individuals are forced by "race"

to live at the lowest economic level of the nation "it should be strongly emphasized that nothing can be done to help the Negro child, in a sense of widespread social engineering, until his family has a chance to obtain a job, a living wage, a political voice and an adequate education for its children. The problems of illegitimacy, delinquency and desertion, which are tremendously more widespread in the Negro than in the white group, are certainly directly related to the economic and social disability of the Negro family."

As Dr. Sutherland points out, "ambition is not an automatic yearning for improvement; it is a social product . . . why is a boy from the Negro masses apt to be careless, without ambition, uncouth, unmoral, even criminal? For the answer we may look to his associates and to the place from which he comes. His culture provides no incentive for acquiring bathtubs, college degrees, recognition in *Who's Who*, a home of his own on a respectable street, a sedate family life. Without incentive and without the examples of others, people do not strive, may not even use to advantage what they do have. This reaction is not a matter of race but of cultural sanction and of human nature."

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PSIKHIATRIYA. Third Edition. By V. A. Gilyarovskij. (Moscow, Leningrad; Medgiz, 1938.)

Whatever we may think of the Russian political philosophy of life, and they of ours, we cannot but admire their sound and thorough approach to the scientific fields of human endeavor. This textbook of psychiatry is an example of their methods, and contains some 650 references. Various investigators are quoted and their views either accepted or rejected. The author is a professor at the Second Moscow Medical Institute, and is apparently widely acquainted with psychiatric progress. His investigations in psychiatry date from 1903.

The book is intended as a guide for physicians and students. It is divided into two parts: General Psychopathology and Special Psychopathology. Under the first heading (260 pages) the following topics are treated: nature of psychosis, symptomatology, etiology, pathological anatomy, therapy and social problems of psychiatry, such as mental hygiene and psychoprophylaxis. In etiology the author attempts to say that trauma either to the soma or to the psyche is responsible for the development of a psychosis. Under Special Psychopathology (500 pages) each form of psychosis is described, and divided into three types. The first is characterized by a process and contains three subdivisions; the process of congenital predisposition under which falls schizophrenia and epilepsy; the processes associated with premature wear of the organism, such as arteriosclerotic, involutional and senile psychoses; and the processes of exogenous agents, such as infectious, intoxication and dramatic psychoses. The second type is called anomaly of development, such as manic-depressive psychosis, constitutional

neurosis and psychasthenia. The third type-psychic reaction and reactive conditions, such as neurosis, paranoia, somatogenesis, psychogenesis (psychogenic reactions and reactive conditions). Mental deficiency, cretinism, mongolian idiocy and other forms of early psychoses are described under this third type as "Conditions of Underdevelopment." Each chapter is written with remarkable thoroughness.

Schizophrenia is described not only from the Russian viewpoint but also as observed by Kraepelin, Bleuler and many others. Russian psychiatrists divide schizophrenia into eleven different groups. In the chapter on pathological anatomy, the author introduces many findings to prove that a well developed schizophrenia presents a distinct anatomical process. He mentions some of the Russian investigators who belong to the exogenous factors group and attempts to coordinate all of the endogenous and exogenous factor views by stating that schizophrenia is a congenital disease of definite systems of the body which become sick through various non-specific irritations. As I see it, there is perfect freedom of scientific investigation and views in the U. S. S. R.

In the chapter on psychotherapy, hypnosis is extensively discussed. It is employed in psychopathic and neurotic conditions, mild depressions, and in withdrawal symptoms of alcoholism. It may be used in the removal of great pain. The psychoanalysis of Freud is described and criticized. Without doubt, the author says, psychoanalysis sometimes helps discover the genesis of neurological disorder, but it is not a definite therapy. Probing into sexual complexes of the individual may not only fail to produce any result, but may harm the individual. Freud is wrong in the essence of things, the author states, because he places the emphasis only on the sexual instances, forgetting the personality as a whole and the definite historical conditions under which it lives. He, however, pays tribute to Freud for establishing the genesis at least partially in some of the nervous conditions and bringing them out of the darkness of metaphysical speculation.

From the administrative standpoint the Russians are endeavoring to construct small psychiatric hospitals of not more than 500 beds. The buildings are of one storey with large porches, many windows, and with spacious and beautiful grounds. The system of non-restraint which dates from the time of Korsakoff, is conscientiously maintained. There are no window bars, no camisoles, no restraint. Under these circumstances the patients enjoy almost as much liberty as if living outside of the hospital. Certain of the disturbed patients are kept in bed and placed under special observation. Instruments or articles which may be injurious are removed. Emphasis is placed on the proper care and treatment of the mentally ill, and provision made for adequate medical personnel. Chronically ill patients are sent to colonies containing from 1000 to 1500 beds. These colonies are practically self-supporting, and most of the patients are engaged in some form of occupation. Patients are also placed in family

care. Psychoneurotics and psychopaths are placed on parole under the supervision of psychiatric stations. The criminally psychotic, alcoholics and morphine addicts are placed in separate hospitals.

Mental hygiene clinics are provided, one for each district of 40,000 population. There are also regional psychiatrists who care for ambulatory patients, taking them to and from mental hospitals, finding suitable occupation for them and defending them in the courts, etc. In all, I am very favourably impressed with Russian administrative psychiatry.

The book is highly recommended not only as a textbook, but as a reference for students of psychiatry.

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CRIMINOLOGY. By Donald R. Taft. (New York: Macmillan Co., 1942.)

This volume, by a professor of sociology who has long been a student of the problems of crime, is said on its title page to be "an attempt at a synthetic interpretation with a cultural emphasis." Granting this bias, the book is a scholarly compilation and presentation of the material on at least one aspect of criminology.

Chapters 4 to 18 (Explanation of Crime) deal with such topics as immigration, economic conditions, juvenile group, the newspaper and crime, and the ecology of crime. Chapters 19 to 32 are devoted to the treatment of the adult criminal, and the remainder of the volume to the treatment of juvenile delinquency and crime prevention.

The psychiatrist, who is interested in why the individual responds to his environment as he does, is likely to feel rather out of place in perusing this book. In the chapter on "Personality Traits and Crime" we are assured that "feeble-mindedness accounts for a very small proportion of delinquency" (p. 79) and that "we do not know definitely what a psychopath is, how prevalent psychopaths are among either criminal or non-criminal groups, or just how the condition is related to crime" (p. 85). Later, in the chapter on "Alcohol and Drug Addiction," alcoholism is taken for granted without any discussion of causation, and we are informed that drug addiction usually has a social origin "... there is no convincing proof that before addiction addicts are basically different either as regards physical or mental traits" (pp. 250, 251).

In the discussion of juvenile delinquency there is a section on the work of the child guidance clinic, but even here rather scant sympathy is shown. The author laments the fact that "social workers have not yet always had the benefit of training in both psychiatry and sociology" (p. 644), and the Gluecks' study entitled *One Thousand Juvenile Delinquents* is quoted to cast doubt upon the efficacy of guidance clinics, even though the group studied by the Gluecks was not supervised by the clinic after diagnosis.

It is disappointing, at least to a psychiatrist, and

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probably to anyone interested in a well-rounded presentation, to find so little attention paid to the individual, and in the chapters on treatment to find no reference to laws or recent legislation dealing with defective delinquents or sexual psychopaths such as has now been adopted in at least four States. However, within the scope which he prescribed for himself, Professor Taft has presented in an orderly manner a large mass of material on a problem of universal interest. Maybe he has, too, (uncomfortable thought!) done a favor to the psychiatrists by holding up a mirror to let them see "how others see us"!

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IN COMMEMORATION OF WILLIAM JAMES. Papers presented at various meetings to commemorate the centenary of his birth. (New York: Columbia University Press. 1942.)

William James was born January 11, 1842. One, only, of the contributors to this volume makes incidental reference to the fact and date of his death in 1910. The reference might have been omitted altogether, for James is one of the Great who do not die. The years of a generation have passed in which his living voice is no longer heard, but the mind of James is as potent in the thinking world today as ever it was; indeed one might say that his influence gathers momentum with the years.

If there were any doubt on that head one would need only to turn to the present symposium. During the academic year 1941-1942 universities, colleges, learned societies and other bodies throughout the land held public meetings to celebrate the hundredth birthday of the great Harvard psychologist and philosopher. The programs of three of these meetings (New School for Social Research, New York City, November 23, 1941; American Philosophical Association, Eastern Division, Vassar College, Poughkeepsie, New York, December 29, 1941; American Philosophical Association, Western Division, University of Wisconsin, Madison, Wisconsin, April 24, 1942), together with three contributions from other sources, are included in this volume. Here speak the personal friends of William James, his colleagues and disciples, as well as others who have known him only at a distance and through his teachings, but all profoundly influenced by him, sharing his views or deeply disturbed by them. In the words of John Dewey, "We have been able only to enlarge the openings which James has made and to do something, not very much, toward getting rid of points of view and postulates which the earlier course of philosophic thinking has bred in us and which hamper us tremendously in seeing and using the resources present-day science and culture offer us." And H. M. Kallen observes that "no American philosopher before or since James has had so disturbing an influence upon the course of philosophic thought in the United States." Kallen speaks of his "incessant change and growth, his generous

hospitality of thought, and his constant striving after perfection in expression"; and Edwin Holt characterizes him as "most unsurpassedly candid, honest, open-minded, sympathetic, genial, generous . . . of all persons most free of repressions; no unaired unswept corners in his mind."

Henry James, the son of William James, was the first speaker at the New York meeting. He attended to certain characteristics of his father which account for his being still so widely read thirty years and more after his death, in contrast, for example, with Herbert Spencer whose books were in little demand soon after his passing. Partly it was James' style and partly it was the kind of man behind the style—which is of course only two ways of saying the same thing. "He was beautifully at home with the genius of our English language." His sentences were models of clear and concise expression and there was the throb of life in them. They were set down with the true instinct of the artist who knew how to economize with words and to infuse into them the warmth of his own spirit. His voice was "la voix du cœur qui seul au cœur arrive." Whatever touched the life of man as a social being was his concern; he had made it his business to be widely informed in many fields outside the confines of his particular work. In one of his letters he had written: "I think a professor, in addition to his *Fach*, should be a *ganzer Mensch*." His search for truth—not something final and delimited—was, as Henry James puts it, "not a mere cool exercise of reason. It was the quest of a passionate pilgrim." As William James himself wrote: "Pretend what we may, the whole man is at work when we form philosophical opinions. Intellect, will, taste and passion cooperate just as they do in practical affairs."

Various aspects of the many-sided James are passed in review in the book we are discussing—James the psychologist, the empiricist, the philosopher, the moralist, the pluralist, the pragmatist. And here we find the evidence of his enduring influence upon the minds of divers workers in the social sciences—the teachers and writers of today.

With those so fortunate as to have been James' pupils he is an abiding presence and for them the beautiful description of his lecture room by his colleague Santayana will add a glow to their own recollections. "In the midst of this routine of the class-room the spirit would sometimes come upon him, and, leaning his head upon his hand, he would let fall golden words, picturesque, fresh from the heart, full of the knowledge of good and evil. Incidentally there would crop up some humorous characterization, some candid confession of doubt or of instinctive preference, some pungent scrap of learning; radicalisms plunging sometimes into the sub-soil of all human philosophies; and, on occasion, thoughts of simple wisdom and wistful piety, the most unfeigned and manly that anybody ever had."

C. B. F.

IN MEMORIAM

HERMAN IRVING WORTIS

1910-1942

Word has been received of the death of Herman Irving Wortis, who was killed in a Navy airplane accident near Dahlgren, Virginia, August 23, 1942. Dr. Wortis was born June 6, 1910, in Brooklyn, New York. He received his B. S. from New York University in 1929, and his M. D. from Cornell Medical College in 1933. He then served a two-year rotating internship at Bellevue Hospital, New York City. Following this he worked on both the psychiatric and neurological services at Bellevue Hospital. He was a member of the teaching staff of New York University College of Medicine, being assistant clinical professor of psychiatry at the time of his death. He had also been instructor in neurology at Cornell Medical College from 1936 to 1939, and assistant in neurology at Columbia University College of Physicians and Surgeons since 1938. He had published a number of articles, showing excellent research ability and interest in the problems of psychosomatic medicine. These articles had related mainly to work with alcohol and vitamin deficiencies. He was a fellow of the American Medical Association and a member of The American Psychiatric Association.

Before war actually occurred, Dr. Wortis had been interested in contributing to the psychiatric work in the armed forces, and had enlisted as a Lieutenant, Junior Grade, in the Medical Corps of the United States Naval Reserve. He had passed through the usual course of training at the United States Naval School at Bethesda, Maryland, and had been assigned for duty at the Naval Training Station at Norfolk, Virginia. He

was extremely enthusiastic about the psychiatric work in the Navy and hoped to be able to do some sort of studies linking psychosomatic medicine and psychiatry with aviation.

In a letter written shortly before his death he wrote as follows: "There is some talk that this particular training station may close down and if it does, I do hope that I can get an assignment with an aviation outfit. I will just keep my fingers crossed and pray. . . . Dr. ——— has just been moved up to ——— field for duty with an aviation outfit and how I envy him. The work here is not too difficult and I am temporarily living at this luxury hotel, with an outdoor swimming pool, etc., which has been taken over by the Navy for commissioned officers. It seems strange and a bit uncomfortable to be sitting here with a 'tall drink,' when so much is happening elsewhere . . . but suppose we will get all the excitement we want before this thing is over."

Dr. Wortis was outstanding among the younger group of psychiatrists. He was well trained in both neurology and psychiatry and had spent part of his time for a number of years in the laboratory, studying the behavior of vitamins in blood and cerebrospinal fluid. He was a skillful clinician, an excellent teacher, and was extremely popular with all his associates. He was always eager to learn, always deprecated his own knowledge, but always came forth with an extremely clear and logical presentation which showed his excellent grasp of the subject under discussion.

K. M. B.